"A STUDY TO EVALUATE THE EFFECTIVENESS OF FOOT MASSAGE ON THE LEVEL OF PAIN AMONG POST OPERATIVE CARDIO THORACIC SURGERY PATIENTS IN NOORUL ISLAM INSTITUTE OF MEDICAL SCIENCES AND RESEARCH FOUNDATION AT THIRUVANANTHAPURAM"

By

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Dissertation Submitted to the

THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY

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In partial fulfilment

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MARCH 2010

ENDORSEMENT BY PRINCIPAL / HEAD OF THE INSTITUTION

This is to certify that the dissertation entitled "**A study to evaluate the effectiveness of foot massage on the level of pain among post operative cardio thoracic surgery patients Noorul Islam institute of medical sciences and research foundation hospital at Thiruvananthapuram"** is a bonafide research work by **Aji.R.L** under the guidance of **Mr. Anand,** A**sst. Professor and HOD, Department of Medical Surgical Nursing**, Dr. Mahalingam College of Nursing.

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What I become is my gift to God."

– St. Augustine.

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LIST OF ABBREVIATIONS

CABG	Coronary artery bypass grafting
DMIPSR	Dharmarathnakara Dr.Mahalingam Institute of paramedical science and research
FM	Foot massage
Fig	Figure
H0	Null Hypothesis
H1	Research hypothesis
H2	Research hypothesis
HOD	Head of Department
M.Sc.,(N)	Master of science(nursing)
N	Total number of samples
NIMS	Noorul Islam institute of medical sciences and research foundation
No	Number
NRS	Numerical rating scale
P	probability
POD	Post operative day
Prof.	Professor
S.D	Standard Deviation
S	Significant
VAS	Visual analogue scale
VNRS	Verbally Administered Numerical Rating Scale
VRS	Verbal Rating Scale
X^2	Chi-Square Test
%	Percentage

ABSTRACT

STATEMENT OF THE PROBLEM

"A STUDY TO EVALUATE THE EFFECTIVENESS OF FOOT MASSAGE ON THE LEVEL OF PAIN AMONG POST OPERATIVE CARDIO THORACIC SURGERY PATIENTS IN NOORUL ISLAM INSTITUTE OF MEDICAL SCIENCES AND RESEARCH FOUNDATION AT THIRUVANANTHAPURAM"

OBJECTIVES

1. To assess the level of post operative pain in cardiothoracic surgery patients before and after implementation of foot massage.

2. To determine the effectiveness of foot massage on the level of pain among post operative cardiothoracic surgery patients.

3. To find out the association between pain and the selected demographic variables.

HYPOTHESIS

H_1: The post-foot massage pain score will be significantly lower than the pre-foot massage pain score.

H_2: There will be a significant association between pre-foot massage pain score and the selected variables.

RESEARCH DESIGN AND METHOD

Pre-experimental one group pre test post test design was used for the present study. Sample consisted of 30 post operative patients with cardiothoracic surgery, who met the inclusion criteria. Tool used was numerical pain scale to assess pain intensity. Data was analyzed using descriptive and inferential statistics.

RESULTS

The findings of the study showed a significant difference in level of pain between the pre and post foot massage sessions before and after 10 minutes of FM, (t_{29}= 9.3185, P=0.05) for the numerical pain scale.

There was significant association between pre foot massage pain and the selected variables such as age (χ^2= 17.85) , $p < 0.05$) and there was no significant association between pain score and other variables..

Conclusion

The results showed that foot massage is an effective non pharmacological method for reducing post operative pain. Foot massage is a simple non invasive cost effective method that can be used effectively for the management of post operative pain.

Chapter - I

Introduction

CHAPTER I

INTRODUCTION

"Pain is an elusive and complex phenomenon, and despite its universality its exact nature remains a mystery."

Taylor (2007), United States**,** states that there are many possible sources of pain following cardiac surgery. Wound pain is inevitable, and in addition to the sternotomy incision there may be an extensive leg wound following vein harvesting. Additional sources of pain and discomfort include mediastinal and pleural drains, tracheal tubes and urethral catheters. Physiotherapy, movement, and tracheal toilet (i.e. suctioning of secretions) add to the patient's distress. Acute pain from the incisions has usually become tolerable after the third day, but complications may arise leading to further pain. These include wound infection, haematoma formation, sternal dehiscence, pleural effusion, pneumonia and myocardial infarction. Bacterial mediastinitis and pericarditis are occasional sources of severe pain, and patients who have sustained a recent myocardial infarction may develop Dressler's syndrome. Retraction of the chest wall intraoperatively can cause trauma to the thoracic cage, leading to the development of costochondritis, musculoskeletal or myofaseial pain postoperatively.

Balram Airan, (2007), Mumbai**,** states that in India there appears to be an epidemic of cardiovascular diseases. Due to industrialization, urbanization and changing life style, cardiovascular and pulmonary diseases are becoming more common and the incidence is an all time high. Every year 50,000 new cases of lung

carcinoma and 20,000 cases of oesophageal carcinoma are diagnosed. Roughly more than six million people have coronary artery disease and about five million people have rheumatic heart disease. Concrete data is not available about the incidence of congenital heart diseases, but approximately 2, 00, 000 babies are born every year with some form of congenital cardiothoracic defect. With the aging population, degenerative diseases of the aorta are also increasing. Presently more than 60,000 open-heart procedures are performed every year in our country and majority of these procedures are for coronary artery disease and valvular heart disease. About 5000 operations are performed every year for congenital heart disease in a few centres.

Black MJ et al, (2006), United State**,** states that pain is an expected outcome postoperatively, yet one of the most frequent postoperative problems is inadequate analgesic administration. All patients who have just had surgery will experience pain. Pain medication should be given when needed and prior to pain becoming severe. Pain may be caused by a factor unrelated to the surgical procedure such as poor positioning; discomfort of a full bladder can initiate abdominal pain even when appropriate medications have been administrated.

Hawks JH, 2006, United States, states that effective pain control is best achieved through a combination of both pharmaceutical and non-pharmaceutical therapies. Pharmaceutical management has been the primary means of providing relief from pain. Although pharmaceutical medications continue to serve as a major contributor to pain management, non-pharmaceutical techniques are being increasingly used to provide pain relief. Non-pharmacologic interventions are particularly useful when (a) medications are inadequate to control pain; (b) client is

waiting for medications to take effect; (c) when side effects or client concerns make the use of medications problematic.

Wang HL, Keck JF, (2004), United Sates, states that main causes an increase in sympathetic response of the body with subsequent risk in HR, cardiac work load and O_2 consumption. Prolonged pain can reduce physical activity and lead to venous stasis and increase risk of deep vein thrombosis and subsequent pulmonary embolism.

Taylor C (2003), United Sates**,** states that many non-pharmacologic methods relieve pain but are not widely used. Complementary therapies are attracting attention and patients are interested in alternatives to biomedicine. In response to patients' interests, nurses are exploring ways to incorporate therapies such as the following:

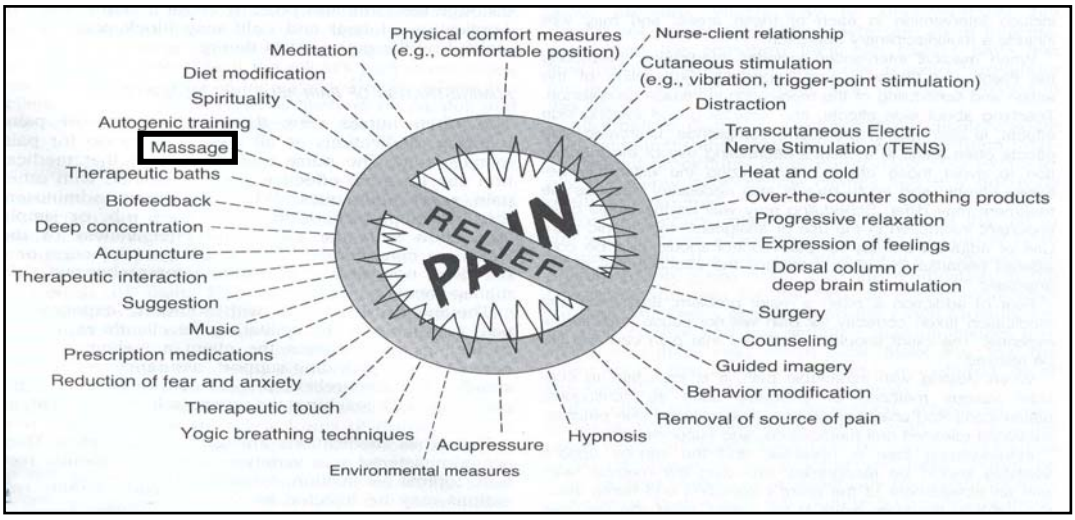


Figure 1: Non-pharmacological pain relief measures (Sorensen L, 1993)

Potter and Perry (2003), United states**,** states that Joint Commission on the Accreditation Of Healthcare Organization, 2003 standards declared that "pain is assessed in all patients" and the patients have the right to appropriate assessment and management of pain management.

Schafheutle EI, (2001), France**,** states that during a patient's stay on a surgical ward, nurses hold a great deal of responsibility for pain management, especially when analgesics are prescribed on a PRN basis. Despite the availability of effective analgesics and new technologies for drug administration studies continue to demonstrate suboptimal pain management.

Black MJ et al, (2001), United States**,** states that pain is a complex, multifaceted phenomenon. It is an individual, unique experience that may be difficult to describe or explain, and often difficult for others to recognise, understand, and assess. Pain often leads to debilitation, diminished quality of life and depression. Pain management challenges every healthcare team member, for there is no single universal treatment**.**

Camp Well (1995), United States**,** states that pain is the 5th vital sign.

Macaffery (1999), United States**,** states that pain means, "Whatever the person says it is, existing whenever the experiencing person says it does"

Melzack and Wall (1998), Miami**,** states that physical concept of pain was developed by Muller in 1842 and Von Frey in 1892-95. Although the psychological aspects of pain came to be acknowledged early in the 20th century in some quarters, one of the first widely accepted theories to encapsulate the idea came from Melzack and wall in1965 in their gate control theory. The gate which is said to exist at the spinal cord level opens to raise the perception of pain and closes to decrease if under the influence of physical, emotional and behavioural factors.

McQuay, (1997), France**,** states that postoperative pain is one of the most common therapeutic problems in hospitals. It can increase morbidity leading to reduced breathing and cough suppression, facilitating retained pulmonary secretions and pneumonia, and delaying normal gastric and bowel function, and thus contributing to a longer recovery period. Strategies aimed at reducing postoperative pain increase patient's comfort and can shorten hospital stay.

Champman CR, Gavrin J, (1993), Italy**,** states that suffering is a frequent consequence of pain and comfort may not be possible in the presence of pain. Helplessness and suffering are experienced when individuals have insufficient resources and are unable to cope up.

Pain is not an unavoidable consequence of surgery. In the majority of patients, postoperative pain is preventable with adequate analgesics and by the appropriate use of newer techniques (**Jorda T 1995)** despite this a number of surveys have shown a high prevalence of significant pain after surgery. The recognition of the inadequacy of postoperative pain management has promoted the development of corrective efforts by surgeons, anaesthesiologists and pain management groups.

NEED FOR STUDY

Wang HL, Keck JF (2004), United States**,** states that pain medicines may be more effective when combined with other pain relief techniques. The effectiveness of the drug may be increased with change in the position of the client, back rub, foot rub, or simple interaction with the patient. Foot and hand massage have the potential to aid pain relief. They conducted a pre-test post-test single group design with participants serving as their own controls in a 39-bed unit at a large teaching hospital in the mid-west between May 1, 2000 and May 1, 2001 to find out the effect of foot and hand massage to decrease pain among postoperative patients who had undergone gastro-intestinal, gynaecological, head neck plastic or urological surgery. A 20-minute foot and hand massage (5 minutes on each extremity) was given and the pain intensity and distress were measured by a 0-10 numerical scale in the modified brief pain inventory. The subjects reported a 56% decrease in pain intensity from 4.65 to 2.35 ($t=8.154$, $P < 0.001$). Pain distress decreased from 4.00 to 1.88 ($t=5.683$, $P < 0.001$). The symptomatic response to pain including heart rate and respiratory rate also significantly decreased ($P < 0.05$).

Lia CC et al (2002), Japan**,** states that massage stimulates cutaneous mechanoreceptors that activate large primary afferents. Massage is the most widely used complementary therapy in nursing practice. It is one of the ways nurses use to communicate caring to patients and touch is central to the nurse's role in healing. Massage is an extended form of touch, which results in mutual energy exchange. It soothes pain and produces relaxation. It increases pain thresholds, and therefore modifies an individual's perception of pain.

Keene A M (2001), Japan**,** states that postoperative pain is a routine poorly controlled by pharmacological means alone. Complementary strategies based on sound research findings are needed to aid in postoperative pain relief as patients routinely report mild to moderate pain even through pain medications have been administered.

Grealish L (2000), France**,** conducted a study to measure the effect of foot massage on the subjective experience of pain, nausea and relaxation among cancer patients admitted to a general hospital was conducted on 62 cancer patients in a cancer hospital in Southern Norway. The result of the study revealed that the mean pre-treatment pain score was 25 which reduced to 15.3. Mean post-test nausea score decreased from 17.5 to 11; the mean pre-test relaxation score was 54 which reduced to 31.8.

Lellan KM (1997) New York**,** states that studies show that pain management following surgery continues to be inadequate. Consequences of under-treated pain include an increased incidence of nausea and vomiting, increased predisposition to respiratory and mobility complications.

Manjelkar P (1996), India**,** conducted a quasi-experimental study at Municipal Hospital, Mumbai in 1996 to identify the effect of back massage on the pain of postoperative patients who had under gone closed mitral commissurotomy. The result of the study showed that on second postoperative day 35% patients in the experimental group received analgesics, whereas all the patients received analgesics in the control group. As for the frequency and time of intake was concerned, those

who needed analgesics in the experimental group received it only once whereas in the control group 75% received twice.

The researcher has come across patients who had inadequate pain relief during postoperative period with pharmacological measures alone. The difficulty with introducing complementary therapies such as foot massage into nursing practice is that there is little empirical evidence to support the use. It is also observed that published research studies and trials on foot massage in the Indian setting are very much limited. Hence this study may be considered important in providing empirical evidence and its efficiency in reducing postoperative pain in patients with abdominal surgery.

Hence the investigator was interested to the study: “a study to evaluate the effectiveness of foot massage on the level of pain among post operative cardio thoracic surgery patients in NIMS. So that complimentary therapies can be incorporated in to pain relief regimen.

STATEMENT OF THE PROBLEM

"**A study to evaluate the effectiveness of foot massage on the level of pain among post operative cardiothoracic surgery patients in the Noorul Islam institute of medical science and research foundation at Thiruvananthapuram"**

OBJECTIVES OF THE STUDY

1 To assess the level of post operative pain in cardiothoracic surgery patients before and after implementation of foot massage.

2 To determine the effectiveness of foot massage on the level of pain among post operative cardiothoracic surgery patients.

3 To find out the association between pain and the selected demographic variables.

HYPOTHESES

Hypotheses will be tested at 0.05 level of significance.

H_1: The post-foot massage pain score will be significantly lower than the pre-foot massage pain score.

H_2: There will be a significant association between pre-foot massage pain score and the selected variables such as age and type of surgery.

OPERATIONAL DEFINITIONS

Impact: It is the noticeable effect or influence or a change which is a result of an action or other cause.

In this study impact refers to the influence of foot massage on the level of pain, as measured by a numerical pain scale.

Massage: Manipulation, methodical pressure, friction and kneading of the body.

In this study foot massage refers to the low stroke manipulations applied on the legs by working through the arch of the foot, stop and apply pressure, press a little harder in between and repeat the activity over the toes, tip of the toes, under and over the foot for 10 minutes on each foot. Massage will be given when the client has moderate to severe pain, 4-5 hours after the administration of analgesics.

Postoperative patients: In this study it refers to the individuals who have undergone cardiovascular and thoracic surgery of any type having pain score more than 3 on the numerical pain scale which represents moderate to severe pain.

Pain: An unpleasant sensation that can range from mild, localised discomfort to agony.

In this study level of pain refers to the unpleasant sensation experienced by the post operative cardiothoracic surgery patients and rated by them against the numerical pain scale.

ASSUMPTIONS

1. All postoperative patients will have some amount of pain.

2. Pain is multifactorial.

3. Pain is an individual unique experience.

4. Postoperative pain is poorly controlled by pharmacological means alone.

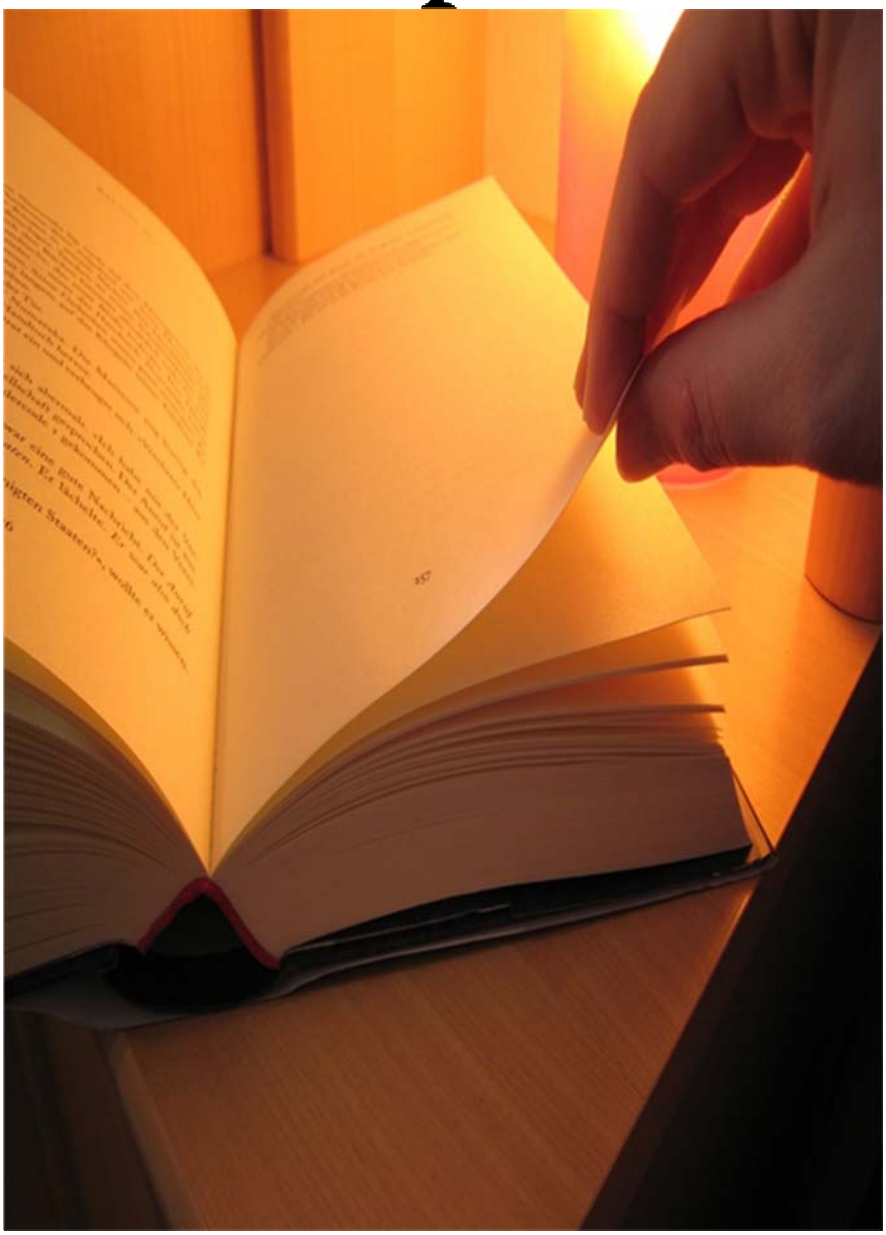
5. Foot massage is one of the effective non-pharmacological methods of pain relief.

LIMITATIONS

The study is delimited to:

- Thirty postoperative cardiothoracic surgery patients only
- Patients who are willing to participate.
- Patients who are conscious.
- Patients with stable vital signs.

Chapter - II



Review of Literature

CHAPTER II

REVIEW OF LITERATURE

A review of literature is a compilation of resources that provide the ground work for further study. It helps with the conceptualization of research problems and the determination of specific problems and the determination of specific methodology to be used for further exploration of the problems. (**Talbot LA 1995)**

Thus the review of literature is an essential step in the development of a research project. It helps the researcher to design the proposed study in a scientific manner to achieve the desired result. It helps to determine the gaps consistencies and inconsistencies in the available literature about a particular subject under the study.

This chapter attempts to present a review of studies alone, methodology adopted and conclusion assured by earlier investigators; which helps to study the problem in depth. The sources to obtain more information on the selected topic were internet search, text book, published journals, published and un published thesis. In this chapter, the researcher presents the review of literature under the following headings:

1. **Literature related to cardiothoracic surgery and pain**
2. **Literature related to effectiveness of numerical pain scale.**
3. **Literature related to Effectiveness of foot massage**
    - Effect of foot massage on pain.
    - Effect of foot massage on other variables.

LITERATURE RELATED TO CARDIO THORACIC SURGERY

BRUCE J (2005), Scotland**,** analysed the follow-up of a cohort of 1348 patients who underwent cardiac surgery between 1996 and 2000 at one cardiothoracic unit in northeast Scotland. The cumulative prevalence of post-cardiac surgery pain was 39.3% (CI_{95} 36.4-42.2%) and mean time of 28 months since surgery (SD 15.3 months). Prevalence of chronic pain decreased with age, from 55% in those aged fewer than 60 years to 34% in patients over 70 years. Chronic pain following median sternotomy and saphenous vein harvesting is more common than hitherto reported and that patients undergoing CABG should be warned of this possibility.

Paula S et al, (2009) United States, described symptom management strategies used by elderly patients (n = 236) 3 and 6 weeks after coronary artery bypass surgery. Overall, fewer patients experiencing sleep disturbances (39%), incision pain (39%), swelling (46%), and appetite problems (17%) reported using a strategy to manage their symptom.

Sue C. Ho, (2006), United Kingdom, conducted pain surveys to all patients who underwent coronary artery bypass graft surgery from 1997 to 1999 from a single surgeon's experience. The incidence of persistent pain at any site was 29% and for sternotomy was 25%. The intensity of pain reported was mild, with only 7% reporting interference with daily living. Other common locations of persistent pain were the shoulders (17.4%), back (15.9%), and neck (5.8%). Twenty patients (8%) described symptoms suggestive of the internal mammary artery syndrome

KING, **(2004),** United States**,** investigated the effects of a personal control intervention in the form of self-administered versus nurse-administered pain medication after cardiac surgery, and its interaction with patients' desire for control, patients' perception of pain intensity, disruption in daily activities, emotional responses, and use of pain medication over time. A time by group interaction was found in reports of pain intensity, $p < .05$, with subjects in the experimental group reporting higher levels of pain intensity than subjects in the control group in the early postoperative period.

GJEILO, K. H (2000) France**,** assessed chronic pain and health-related quality of life after cardiac surgery. Pain was measured by the Brief Pain Inventory. Results: Five hundred and twenty-one patients were alive 12 months after surgery; 462 (89%) and 465 (89%) responded after 6 and 12 months, respectively. Chronic pain was reported by 11% of the patients at both measurements. Younger age was associated with chronic pain [odds ratio 0.7 (95% confidence interval: 0.5-0.9)] at 12 months.

Vibhu R. Kshettry MD (2005) United States**,** evaluated the feasibility, safety, and impact of a complementary alternative medical therapies package for heart surgery patients. One hundred four patients undergoing open heart surgery were prospectively randomized to receive either complementary therapy (preoperative guided imagery training with gentle touch or light massage and postoperative music with gentle touch or light massage and guided imagery) or standard care. Pre-treatment and post treatment pain and tension scores decreased significantly in the

complementary alternative medical therapies group on postoperative days 1 ($p <$ 0.01) and 2 ($p < 0.038$).

Kianfar et al (2007) United States**,** conducted a study to find the location, distribution, and intensity of pain in a sample of adult cardiac surgery patients during their postoperative ICU stay. In a prospective study, pain location, distribution (number of pain areas per patient), and intensity (0–10 numerical rating scale) were documented on 250 consecutive adult patients on the first, second and third postoperative day (POD). Patient characteristics (age, sex, size, and body mass index) were analyzed for their impact on pain intensity. There were 140 male and 110 female patients, with a mean ± SD age of 65.7 ± 13.5 years .The maximal pain intensity was significantly higher on POD 1 and 2 (3.7 ± 2 and 3.9 ± 1.9, respectively) and lower on POD 3 (3.2 ± 1.5). The order of overall pain scores among activities ($P < 0.001$) from highest to lowest was coughing, moving or turning in bed, getting up, deep breathing or using the incentive spirometer, and resting. After chest tubes were discontinued, patients had lower pain levels at rest ($P = 0.01$), with coughing ($P = 0.05$). Age and sex was found to have an impact on pain intensity, with patients <60 years old and male patients having a higher pain intensity than older patients on POD 2 (4.7 ± 2.0 vs. 3.2 ± 2.4, $P = 0.02$ and 4.5 ± 2.3 vs. 2.9 ± 2.2, respectively).Pain relief is an important outcome of care. A comprehensive, individualized assessment of pain that incorporates activity levels is necessary to promote satisfactory management of pain.

LITERATURE RELATED TO EFFECTIVENESS OF NUMERICAL PAIN SCALE

Laetitia Marquié (2008), France**,** conducted a study to know how patients and physicians use the the visual analog scale (VAS) and the verbally administered numerical rating scale in a French emergency department (ED).Patients (N = 198) and their physicians (N = 48) rated the patients' pain from 0 to 10 using both VAS and VNRS, both at arrival at and on discharge from the ED. The ratings obtained by VAS and VNRS were highly correlated, for both patients and physicians.

Polly E. Bijur, (2005), France**,** assessed the comparability of the NRS and visual analog scale (VAS) as measures of acute pain, and to identify the minimum clinically significant difference in pain that could be detected on the NRS numerical rating scales (NRSs) Of 108 patients entered, 103 provided data at 30 minutes and 86 at 60 minutes. NRS scores were strongly correlated to VAS scores at all time periods (r= 0.94, 95% CI = 0.93 to 0.95). The slope of the regression line was 1.01 (95% CI = 0.97 to 1.06) and the y-intercept was −0.34 (95% CI =−0.67 to −0.01). The minimum clinically significant difference in pain was 1.3 (95% CI = 1.0 to 1.5) on the NRS and 1.4 (95% CI = 1.1 to 1.7) on the VAS. Conclusions: The findings suggest that the verbally administered NRS can be substituted for the VAS in acute pain measurement.

Diane M. Birnbaumer, (2003), Italy, compared the visual analog scale (VAS) and the verbally administered numerical rating scale (NRS) for assessing pain. Patients rated the severity of their pain by marking a point on a 10-cm VAS (0=no pain and 10=worst possible pain) and by verbally responding to a 10-point NRS (0=no pain and 10=worst possible pain). . The VAS and NRS scores were strongly correlated (slope of regression line, 1.01). The minimum clinically significant

difference in pain measurement was 1.3 on the NRS and 1.4 on the VAS.This and other studies show that the VAS and the NRS are reproducible and comparable methods for measuring pain.

R. A. Seymour, (2000), London**,** compared two 10 cm visual analogue scales , a 0–10 point numerical rating scale and a four-point verbal descriptive scale, in assessing pain severity in twelve patients with post-operative pain following removal of an impacted lower third molar. High correlations were shown between the pain scores from the two visual analogue scales and the numerical scale.

Breivik, (1999), Miami**,** examined the agreement and estimated differences in sensitivity between pain assessment scales. Multiple simultaneous pain assessments by patients in acute pain after oral surgery were used to compare a four-category verbal rating scale (VRS-4) and an 11-point numeric rating scale (NRS-11) with a 100-mm visual analog scale (VAS). The simulation results demonstrated similar sensitivity of the NRS-11 and VAS when comparing acute postoperative pain intensity.

Jawaid M (1999), Iran, assessed the acute postoperative pain management by a surgical team and patient satisfaction in a tertiary care teaching hospital. : 105 patients, both sexes, mean age of 35.1 +/- 14.6 years, scheduled for general surgery under routine practice conditions, were included in the study. All patients were assessed 12 and 24 hours postoperatively by two numerical visual analogue scale (VAS 0-10), related to rest and dynamic pain. At 12 hours postoperatively mean rest

and dynamic pain scores were 3.85 +/- 2.45 and 5.32 +/- 2.61 respectively. At 24 hours postoperatively mean rest and dynamic pain scores were 2.84 +/- 1.86 and 4.65 +/- 2.47 respectively. Overall, female patients experienced more pain but there was no statistically significant difference apart from rest pain at 24 hours.

Mark P. Jensen, 1993, United States, conducted a study to provide an empirically derived guideline for determining the number of levels needed to assess self-reported pain intensity. The results suggest that 10- and 21-point scales provide sufficient levels of discrimination, in general, for chronic pain patients to describe pain intensity.

LITERATURE RELATED TO EFFECTIVENESS OF FOOT MASSAGE ON PAIN

Kim JH (2002), Korea, conducted a Non equivalent control group, pre test post test design study in a university hospital in Seoul Korea on 40 patients who operated under G/A from July 7, 2000 to Feb 20, 2001 to investigate the effects foot massage on pain in post abdominal operative patients. Severity of pain was checked with VAS and vital signs were measured with PR, SBP and DBP. Collected data were analyzed by the chi-square, Fishes exact test, t-test and repeated measures ANOVA. The severity of pain decreased significantly in the experimental group as compared to the control group following foot massage t= -3.37, p=.002. The PR in the experimental group was lower than that is the control group following foot

massage (F=7.73, P=.008). The SBP in the experimental group was lower than that in control group following foot massage (F=25.75, P=.000).

Wang HL, **Keck JF (2004),** United States**,** conducted a study to investigate whether a 20-minute foot and hand massage (5 minutes to each extremity), which was provided 1 to 4 hours after a dose of pain medication, would reduce pain perception and sympathetic responses among postoperative patients. . A convenience sample of 18 patients rated pain intensity and pain distress using a 0 to 10 numeric rating scale. They reported decreases in pain intensity from 4.65 to 2.35 ($t = 8.154$, $p < .001$) and in pain distress from 4.00 to 1.88 ($t = 5.683$, $p<0.001$). Statistically significant decreases in sympathetic responses to pain (i.e., heart rate and respiratory rate) were observed although blood pressure remained unchanged. This pain was reduced by the intervention, thus supporting the effectiveness of massage in postoperative pain management. The authors concluded: "Foot and hand massage appears to be an effective, inexpensive, low-risk, flexible, easily applied strategy for postoperative pain management." Nurses can provide much toward patient comfort and healing by providing and/or teaching massage techniques to family members. Improved patient outcomes include post-operative pain control, without excessive use of risky narcotics, shorter patient recovery times and fewer complications following surgery from patient mobilization.

Chugh D (2006), Kolkata, conducted a quasi-experimental research approach with one group pre-test post-test with interrupted time series design was conducted in a cardio-thoracic speciality hospital, Kolkata (n=30) to determine the effect of ten minutes foot massage on two phases of postoperative coronary artery bypass graft

(CABG) patients on pain, blood pressure, pulse rate, respiration. There was significant reduction in the heart rate, respiration and blood pressure measurements between the pre and post-test pain scores indicating a significant difference (P<0.001) and the opinionniare showed that most of the patients (80-90%) expressed a positive opinion on foot massage.

Halme (1999), United Kingdom**,** a randomized controlled study conducted at Anaesthetic Department, Stepping Hill Hospital, Stockport, England, examined the effect of foot massage on patients' perception of care received following laparoscopic sterilisation as day case patients. Fifty-nine women were randomly allocated into two groups. The experimental group received a foot massage and analgesia postoperatively; whilst the control group received only analgesia postoperatively. Each participant was asked to complete a questionnaire on the day following surgery. This examined satisfaction, memory and analgesia taken. The 76% percentage response rate was comparable with other patient satisfaction studies following day case surgery. Statistical analysis showed no significant overall difference in the pain experienced by the two groups; however, the mean pain scores recorded following surgery showed a significantly different pattern over time, such that the experimental group consistently reported less pain following a foot massage than the control group (p<0.001). This study has attempted to explore the use of foot massage in a systemic way and is therefore a basis for further study.

Kesselring A, Spichiger E,(1998),United Kingdom**,** conducted an interventional study on foot reflexology (FR) to test if foot reflexology affects the wellbeing, voiding, bowel movements, pain and sleep in women who underwent an

abdominal operation. One hundred and thirty subjects were randomised into three groups; 15 minutes foot reflexology/foot massage/talking were given for 4-5 days respectively. Results show that the women in the foot reflexology group were more able to void without problems, after the indwelling catheter had been removed than did women in the comparison groups. There was also a tendency in the FR group for the indwelling catheter to be removed earlier than in the other groups. In comparison the FR-group slept worse than the others. The foot massage (FM) group showed significant results in the subjective measures of wellbeing, pain and sleep.

LITERATURE RELATED TO EFFECTIVENESS OF FOOT MASSAGE ON OTHER VARIABLES

Hayes AJ, (1999), Japan, conducted a quasi-experimental repeated measures design study to find out the immediate effect of a five-minute foot massage on patients in critical care, at Miami Japan, reflected that critical care can be considered to be a stressful environment at both physiological and psychological levels for patients. A five-minute foot massage was offered to 25 patients, selected by purposive sampling which showed there was no significant effect from the intervention on peripheral oxygen saturation. However, a significant decrease in heart rate, ($p<0.01$) blood pressure, ($p=0.02$) and respiration ($p<0.038$) was observed during the foot massage intervention. Result indicated foot massage had the potential effect of increasing relaxation as evidenced by physiological changes during the brief intervention administered to critically ill patients in the intensive care unit.

Nitta N (2001), Japan, conducted a comparative study in Osaka Japan to find out the effect of foot massage. Foot bath and Foot massage combined with Foot bath

for relaxation compared with that of a control group. Ten subjects (mean age 72, S.D 2.2) physiological data (H.R and foot skin temperature) were continuously measured and subjective comfort data were obtained before care, immediately after care, and 120m after care. Analysis done by one way ANOVA, Tukey's test and Fried man test. Immediately after care, Foot massage resulted in significant decrease in HR in comparison with control group. (P=0.01).

Jirayingmongkol (2002), Japan**,** conducted an experimental study (pre test post test quasi experimental design) in Japan to investigate the effects of biofeedback using foot massage. The sample consisted of four men and sixteen women (age range 61-69 years). Four trained researchers massaged the feet of the subjects and measured vital sign changes. Bio feed back also was investigated before and after the foot massages. Results showed that the average biofeedback and temperature were lower before than after the foot massage (P<0.01). The average PR, respiratory rate and blood pressure however, were found to be lesser after the foot massage (P<0.01).

Mc Ree L (2007) ,United States**,** conducted a study to investigate the effect of pre-operative foot massage on intra and post operative outcomes in 105 females subjects who had a laparoscopic gynaecologic surgery procedure done. The subjects received a 30 minute massage (Foot Massage group) or 30 minutes of passive touch (Control group.) patients in the massage group received significantly less intra operative narcotics (2.2$\pm$ 1.1 versus 2.8 $\pm$ 2.0mg of fentanyl /kg/hour) Patients in the massage group had significantly less postoperative anxiety (massage group, 9.83$\pm$ 2.9 vs control group 11.24$\pm$ 3.6).

Won JS (1999), Korea**,** conducted a study in Seoul – Kyanggi province area of Korea to investigate the effect of foot massage on sleep, vital sign, and Fatigue in the elderly. Data were collected from 20 elderly by convenience sampling and analyzed the change of sleep and sleep satisfaction, vital signs (PR, Respiration, SBP and DBP) and general fatigue between pre and post foot massage using paired t-test. Result showed significant difference in the sleep and fatigue between pre and post foot massage (P=0.05).

Kim HS, Chang CJ. (2000) Korea conducted an experimental study (pre test post test control group design) in Gachon, Korea among 50 preoperative patients undergoing total hysterectomy 25 were in the experimental group (10 mts foot massage) and 25 in the control group from 10th July to 18th September 2000 to examine the effect of foot massage on anxiety response. The levels of anxiety were measured by VAS, state anxiety scale, BP, PR and respiratory rate. Data analysed using chi-square – test, t-test and ANOVA. The results showed significant reduction in anxiety level systolic blood pressure, pulse rate and respiration rate of the experimental group after foot massage. Significant differences were found in anxiety level, systolic blood pressure, pulse and respiratory rate between the experimental and control groups after foot massage.

Williamson J, (2002) United Kingdom**,** conducted a randomised control trial of reflexology for menopausal symptoms in the Department of Complementary Medicine, School of Sport and Heath Sciences, University of Exeter, UK, revealed mean (SD) scores for anxiety fell from 0.43 (0.29) to 0.22 (0.25) in the reflexology group and from 0.37 (0.27) to 0.27 (0.29) in the control group who received foot

massage over the same period. Mean (SD) scores for depression fell from 0.37 (0.25) to 0.20 (0.24) in the reflexology group and from 0.36 (0.23) to 0.20 (0.21) in the control group. The result revealed foot reflexology was not shown more effective than foot massage in the treatment of psychological symptoms occurring during menopause.

Hattan J (2002) United Kingdom conducted a randomized control trial in a large teaching hospital in England on the impact of foot massage and guided relaxation following cardiac surgery (CABG). Twenty-five subjects were randomly assigned to either a control or one of the two intervention groups (control group n=7, treatment followed normal ward protected, guided relaxation group n=9 and foot massage group n =9, both followed normal ward protocol along with 20 minutes of either guided relaxation or foot massage). Psychological and physical variables were measured immediately before and after the intervention using VAS. Results showed no significant effects on physiological parameters. There was a significant effect of the intervention on the calm scores among the massage group (x=29.78) (P=0.014). Although not significant, the guided relaxation group also reported substantially higher levels of calm than the control group (x=13.89). There was a clear trend across all patients in the psychological variables for both foot massage and to a lesser extent, guided relaxation to improve psychological wellbeing. This intervention appears to be effective non-invasive technique for promoting psychological wellbeing among CABG patients.

Barbara W (2000), Boston**,** conducted an experimental study was conducted at Massachusetts general hospital Boston on 87 cancer patients on the effects of foot

massage and relaxation on decreasing anxiety, pain and nausea. The subjects were given 10-minutes slow, firm, gentle stroke towards the heart from the base of the toes up the foot, and lower limb to the knee. It was found to have significant effect on the perception of pain and nausea when measured with a Visual Analogue Scale. Patients reported pain levels decreased significantly after the foot massage (p=0.01). The findings for a reduction in nausea and an increase in relaxation were equally significant; no change occurred in the control group.

Ferrell-Torry and Glick (1992), Australia, evaluated that ten minute reflexology treatments can provide relief from pain, nausea and anxiety according to a report from the School of Nursing, Division of Science and Design, University of Canberra, Australia. Nurses at the school conducted an empirical study on the use of foot massage as a nursing intervention in patients hospitalised with cancer. 87 patients participated in the study and each received a 10-minute reflexology foot massage (5 minutes per foot). The results revealed that the treatments produced a significant and immediate effect on the patients' perceptions of pain, nausea and relaxation when measured with a visual analogue scale.

Grealish, L. Lomasney, A., Whiteman, B (2000), Australia**,** conducted a study on Foot Massage: A nursing intervention to modify the distressing symptoms of pain and nausea in patients hospitalized with cancer. Researchers noted a significant decrease in anxiety for patients diagnosed with breast or lung cancer and a significant decrease in pain for patients with breast cancer.

CONCEPTUAL FRAMEWORK

ROY'S ADAPTATION MODEL - MODIFIED

A conceptual framework is a theoretical approach to study the problems that are scientifically based, which emphasises the selection, arrangement and classification of its concepts.

A conceptual framework is referred to as the interrelated concepts or abstracts that are assembled together in some rational scheme by virtue of their relevance to a common theme. The overall objective of a framework is to make scientific findings

meaningful and generalisable and they also give direction for relevant questions of practical problems.

The conceptual framework for this study is developed by the investigator based on Roy's Adaptation Model. The focus of this theory is the adaptation of the individual to various stimuli, both from the environment and from within. An individual's behaviour is based on the input, control process, output, and feedback mechanism.

Sister Calista, Roy views people as individuals who are in constant interaction with the surrounding environment, an integral whole with biological, psychological, and social components. Individuals have certain needs which they endeavour to meet in order to maintain integrity. The needs are divided into adaptive needs such as physiological, self-concept, role function, and interdependence.

Input: They are the various stimuli which provoke or stimulate the individual. The adaptation level of the individual is determined by the different stimuli to which he/she is exposed. Focal, contextual and residual are the three different stimuli present. The individual is exposed to a variety of stimuli during the postoperative period. To cope with these stimuli, he/she requires various types of comfortive and supportive measures like positioning, massage, relaxation techniques, and deviation techniques.

Focal stimuli: Focal stimuli are those which immediately confront the person. In this study, it is the postoperative pain experienced by post operative patients with cardiothoracic surgery

Contextual stimuli: Contextual stimuli are all other internal and external stimuli of the person that can be identified as having a positive or negative influence on the situation. In this study, the postoperative cardiothoracic surgery pain will be influenced by contextual stimuli like altered nutrition, anxiety, fear of the unknown surroundings, and poor social support.

Residual stimuli: Residual stimuli are those internal factors whose current effects are unclear. The beliefs, attitudes and traits of an individual developed from the past, but affecting the current responses. In this study, they are the past experiences, previous hospitalisation, sociocultural orientation, contact with healthcare professionals, pain threshold, and lack of knowledge regarding the outcome.

Control process: The control process includes biological and psychological coping mechanisms. Regulator and cognator are the two sub-system coping mechanisms.

Regulator: A sub-system coping mechanism which responds automatically through neural-chemical-endocrine processes. In a postoperative cardiothoracic surgery patient, thoracic, nerves transmit pain stimuli to the dorsal root ganglia and to the posterior horn of the spinal cord. From there the impulse will be transmitted to the thalamus and to the sensory cortex of the brain.

The cognator: Responds through the complex process of perception, information, processing, learning, judgement and emotion. The individual uses the cognitive subsystem by perceiving the information given by the caregivers. In this

study the investigator explains the impact of foot massage on postoperative pain and the client will understand, appreciate and cooperate positively and manifest positive behaviour.

Output: Output is the decreased or increased perception to the stimuli and corresponding adaptive or maladaptive behavioural responses.

In this study, it is the decreased intensity of postoperative pain corresponding adaptive behavioural responses.

Feedback: When the output becomes a non-adaptive behaviour response, it may contribute as one of the stimuli which require confrontation or intervention.

The adaptive modes: Adaptive or effectors modes are a classification of ways of coping that manifest regulator or cognator activity.

The physiological mode: It involves the body's basic needs and ways of dealing with adaptation with regard to fluid and electrolytes, nutrition, circulation, oxygenation, elimination, exercise and rest, and the regulation of senses, temperature and endocrine function. Excessive fatigue, fluid electrolyte imbalance, muscular rigidity, irritability, clenching fists, teeth, biting complaints of pain, and elevated blood pressure and heart rate are ineffective or maladaptive responses of physiological mode.

Self-concept mode: Self-concept is related to the basic need for psychic integrity, composite of beliefs, and feelings that one holds about oneself at a given time.

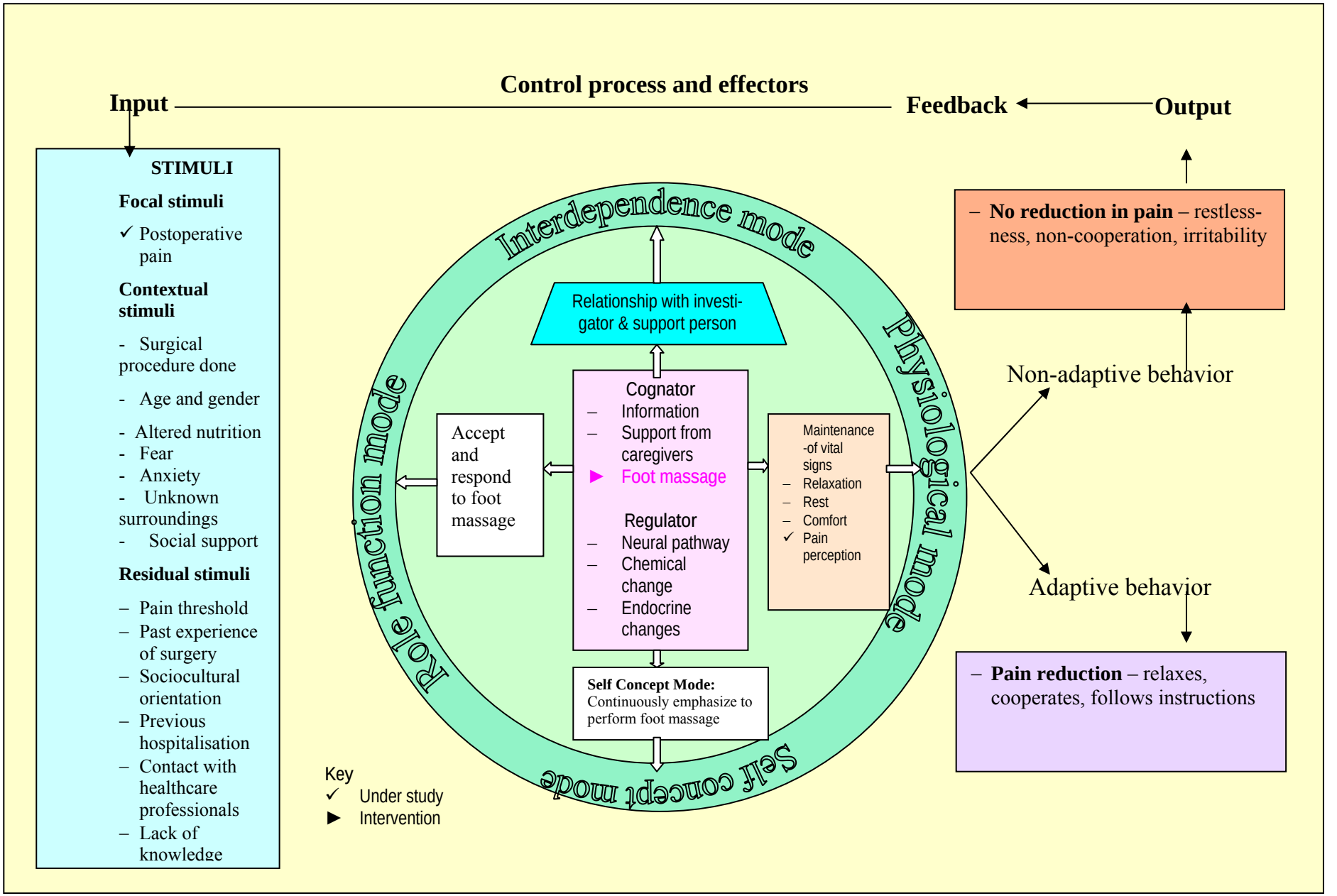
In this study, self-concept refers to the maintenance of morale, spiritual self, and confidence which are adaptive responses; and anxiety, fear, lack of self-control over pain, and irritated mood which are ineffective responses.

Role function mode: Role function is the performance of duties based on given positions in the society. Accepting one's own role as head of the family, mother, teacher, etc are adaptive responses. Restlessness, non-cooperation with care providers, and indifference are ineffective or maladaptive responses.

Interdependence mode: It is the relationship with significant others and the supportive system. In this study, cooperation, maintenance of good interpersonal relationship with the care providers and the investigator are adaptive responses whereas uncooperative behaviour is the nonadaptive response.

Foot massage will help conserve energy, increase circulation, reduce heat rate and blood pressure relieve pain, promote comfort and relax muscles of the individual during postoperative period.

Figure 2: Conceptual framework on impact of foot massage on postoperative cardiothoracic surgery patients based on Roy's Adaptation Model



Chapter - III

Methodology

CHAPTER III

METHODOLOGY

Research methodology is the systematic way of doing a research to solve a problem. It comprises of the statement of the problem. The objectives of the study, the hypotheses that have been formulated, the variables under study, the methods used for data collection and the statistical methods used for analysing the data and the logic behind it. (**Kothari CR, 2003**)

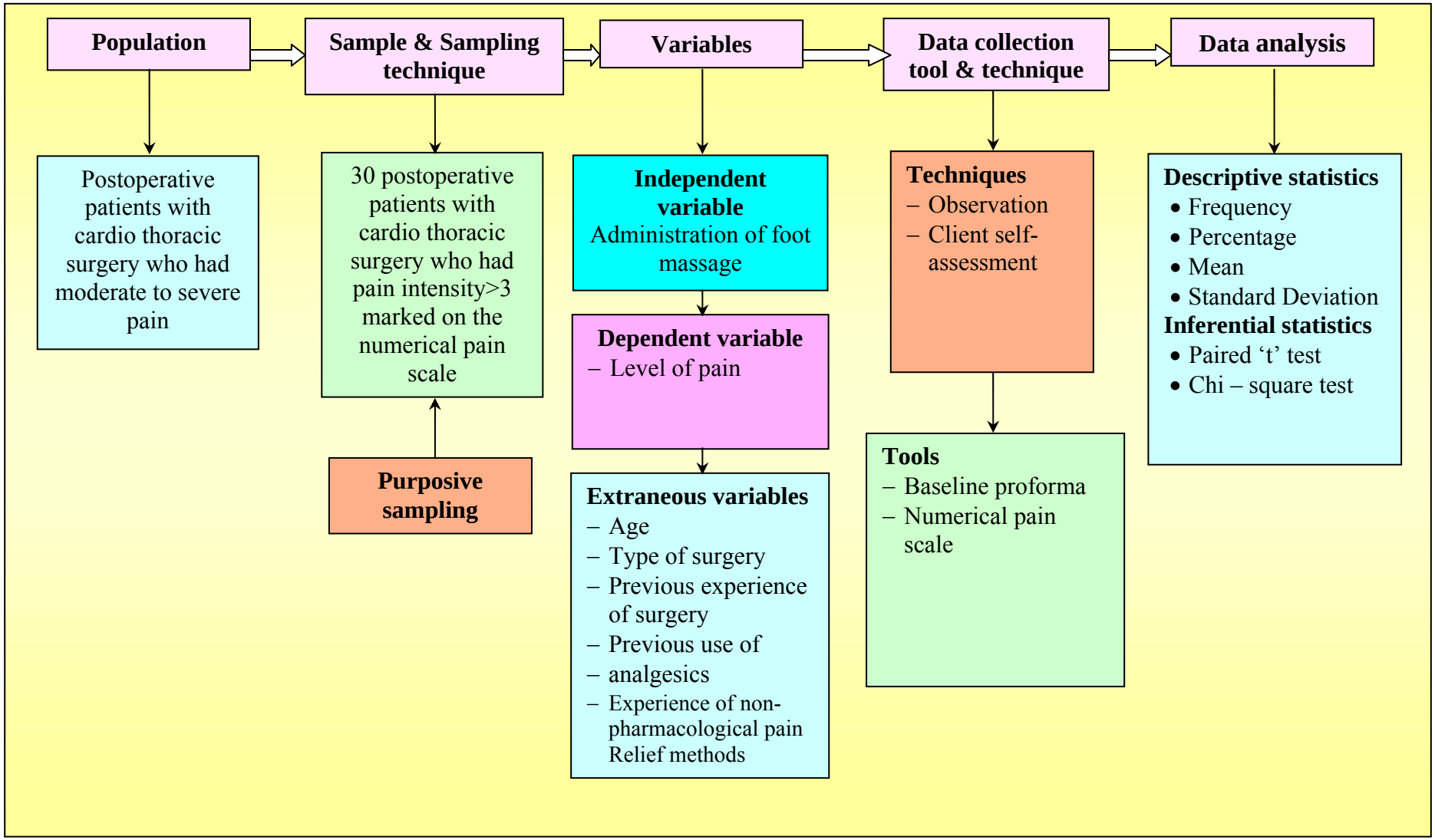
On the whole it gives a general pattern of gathering and processing the research data.

The present study aimed at assessing the impact of foot massage on the level of pain among postoperative patients with cardiothoracic surgery in unit in at Trivandrum.

RESEARCH APPROACH

In view of accomplishing the main objective of the study an experimental approach was used. An experimental research is the utilisation of scientific research methods and procedures to experiment a problem, treatment practice or policy. It uses analytic means to document the worth of an activity(Wood GL1994)

FIG 3: SCHEMATIC REPRESENTATION OF RESEARCH DESIGN



RESEARCH DESIGN

Research design is the overall plan for addressing a research question including specification for enhancing the integrity of the study (Treece EW 1999)

Pre experimental one group pre-test, post-test design was adopted for the study. The pre-test was carried out to assess the level of pain of postoperative cardio thoracic surgery patients prior to foot massage.

Subjects	**Pre-treatment**	**Treatment**	**Post-treatment**
Postoperative patients with cardio thoracic surgery who had pain score >3 marked on numerical pain scale	O_1	X	O_2

Figure 4: Schematic representation of the study design

The schematic representation of the research design indicates the following sequential activities that had been carried out to collect the data.

O_1: Assessment of level of pain.

X: Foot massage for 10 minutes.

O_2: Recording level of pain immediately after the intervention

. .

VARIABLES UNDER STUDY

INDEPENDENT VARIABLE

An independent variable is the one that is believed to cause or influence dependent variable. It stands alone and does not depend on any other.(Polit DF, Hungler BP 1999)

In this study the independent variable is foot massage administered to postoperative cardio thoracic surgery patients.

DEPENDENT VARIABLES

A dependent variable is the outcome variable of interest; the variable that is hypothesised to depend on or caused by another variable.

In this study dependent variable is the level of pain of postoperative cardio thoracic surgery patients.

RESEARCH SITE

The site is where the population or portion of that population is being studied.

The study was conducted at The Noorul Islam Institute of Medical Science (NIMS) & Research Foundation, NIMS MEDICITY Hospital, which is a 500 bedded cardiac speciality hospital. It is a teaching institute which offers both undergraduate

and post graduate courses in dental and nursing courses. The hospital has well established with Medical surgical, paediatrics, orthopaedics, cardiothoracic and gynaecological wards and ICU. The study was conducted in the cardio thoracic intensive care unit.

SETTING

The setting consisted of the cardio thoracic intensive care unit. On an average 50 cardio thoracic surgeries take place per month which includes coronary artery bypass grafting, valve replacement, lobectomy and other surgeries.

POPULATION

Population is the total number of people who meet the criteria that the researcher has established for a study from whom subjects will be selected and to whom the finding will be generalised.

In the present study population consisted of postoperative cardio thoracic surgery patients in admitted during the time of data collection.

SAMPLE

A sample is a small portion of the population selected for observation and analysis.

Post operative cardio thoracic surgery patient in Noorul Islam institute of medical sciences and research foundation were the populations for the study who fulfil the criteria were selected as samples for this study.

SAMPLE SIZE

The sample comprised of 30 post operative cardio thoracic surgery patients who met the inclusion criteria and were admitted in intensive cardio thoracic unit of Islam institute of medical sciences and research foundation

SAMPLING TECHNIQUE

Sampling refers to the process of selecting a portion of the population to represent the entire population.

In this study non probability purposive sampling technique has been used to select the sample.

Purposive sampling is based on the belief that a researchers knowledge about the population can be used to handpick the cases to be included in the sample.

SAMPLING CRITERIA

INCLUSION CRITERIA

1. Postoperative patients with cardio thoracic surgery above the age of 20 years.
2. Patients who were willing to participate in the study and to receive foot massage.
3. Patients who were on first post operative day.
4. Subjects having pain intensity > 3 marked on the numerical pain scale.

EXCLUSION CRITERIA

1. Patients who had damaged tissue or skin on foot from any cause.

2. Patients having pain intensity < 3 marked on the numerical pain scale.

3. Subjects with stable vital parameters.

DEVELOPMENT OF THE DATA COLLECTION INSRUMENT

Data collection tools are the procedures or instruments used by the researcher to observe or measure the key variables in the research problem. Observational methods are the techniques for acquiring information for research purposes through direct observation and recording of phenomena. The tools selected for this study were:

1. Baseline proforma.
2. Numerical pain scale

The following steps were adopted in the development of the tool:

1. Review of literature provided adequate content for the tool preparation.
2. Direct contact with the patients and significant others during clinical posting.
3. Opinion of experts from medicine, surgery and nursing departments.
4. Construction of a baseline Performa.
5. Construction of numerical pain scale to assess pain intensity.
6. Content validity.
7. Pre-testing of the tool.
8. Reliability of the tool and instruments used was ascertained by rater-interrater reliability.

DESCRIPTION OF DATA COLLECTION INSTRUMENT

The data collection instruments consisted of two tools.

Tool I – BASELINE PROFORMA

Baseline proforma of the subjects consisted of the following 9 items: age, sex, educational qualification, occupation, surgical procedure done, past surgical experience, past experience with analgesia/anaesthesia, experience of non-pharmacological pain relief methods, and the type of therapy used.

Tool II – NUMERICAL PAIN SCALE TO ASSESS THE LEVEL OF PAIN INTENSITY

The numerical rating scale comprised of a 10 cm horizontal line with end points marked as '0' and '10.' An increase in score denotes an increase in pain level and the score ranges from 0 – 10.

0 - No pain

1- 3 - Mild Pain

4- 6 - Moderate Pain

7 – 9 - Severe Pain

10 - Worst pain possible

For analysis the score 1 -5 was given to no pain, mild pain, moderate pain, severe pain and worst pain possible respectively.

CONTENT VALIDITY

Content validity refers to the degree to which an instrument measures what it is supposed to measure.

The content validity of the present tool along with the evaluation criteria checklist was submitted to 5 experts in the field of medical surgical nursing, surgery and physiotherapy for their opinion on the items in the tool. There was 100% agreement by experts and minimal modifications were made in base line proforma based on the given suggestion.

PRE-TESTING

Pre-testing is the process of measuring the effectiveness of an instrument. Pre-testing was done by administering the tools to five postoperative patients with cardio thoracic surgery in the postoperative wards of the NIMS Hospital. The items were found appropriate and easy to use. Hence the instrument remained as it was without any modification.

RELIABILITY OF THE TOOL

Reliability is defined as the extent to which the instrument yields the same results on repeated measure; it is concerned with consistency, accuracy, stability and homogeneity.

In this study standardised numerical pain assessment scale was used to measure the pain intensity of patients.

PILOT STUDY

A pilot study is defined as a small scale version or a trial run of the major study. Its function is to obtain information for improving the project or for assessing the feasibility. The principal focus is on the assessment of the adequacy of measurement. Prior to the study the investigator underwent 14-hour training on foot massage under an expert in the Physiotherapy Department of the Kovai Medical Center Hospital, Erode.

The pilot study was conducted in the postoperative unit of Cardio thoracic intensive care unit Kovai Medical Center Hospital from 4/11/2009 - 10/11/2009. The investigator obtained formal permission from the concerned authority prior to the study. The study was conducted on 10 postoperative patients with cardio thoracic surgery who fulfilled the inclusion criteria for the selection of the sample. The purpose of the study was explained to the subjects and a written consent was obtained after assuring confidentiality. Baseline information was collected. The numerical pain score was obtained and foot massage (intervention) was given for 10 minutes. Pain intensity was checked immediately after intervention.

The tools were found feasible and practical. Analysis of the data was done using descriptive and inferential statistics. No further changes were made in the tool after the pilot study and the investigator proceeded for the main study.

DATA COLLECTION PROCESS

Data collection for the main study was done in the postoperative cardio thoracic surgery unit of NIMS hospital from 11, 2009 to November 30, 2009. Formal permission obtained from the administrator before data collection. The purpose of the study was explained to the subjects and written consent was obtained after assuring confidentiality. Pre-assessment pain intensity was recorded. Foot massage with low stroke manipulations was applied on each leg of the subject for 5 minutes. Pain intensity was recorded immediately after the intervention. The data collection process was terminated by thanking the subjects for their cooperation.

1. PLAN FOR DATA ANALYSIS

Analysis is the systematic organisation and synthesis of research data and the testing of the research hypothesis using that data.

- The data obtained will be analysed using both descriptive and inferential statistics based on the objectives and hypotheses of the study.
- Baseline proforma containing sample characteristics will be analysed by using frequency and percentage.
- Impact of foot massage on pain intensity would be analysed by range, mean and standard deviation.
- Test of significance will be determined by using paired ‘t’ test.
- Association between pre-foot massage pain score and the selected variables would be analysed by chi- square test.

Chapter IV

Data Analysis & Interpretation

CHAPTER IV

ANALYSIS AND INTERPRETATION

INTRODUCTION

This chapter presents the analysis and interpretation of the data collected to determine the impact of foot massage on the level of pain, among postoperative patients with cardio thoracic surgery in Noorul Islam Institute Of Medical Science and Research Foundation at Thiruvananthapuram.

The analysis of data involves the translation of the information collected during the course of the research project into interpretable, convenient and descriptive terms and to draw inferences from them using statistical methods. The purpose of analysis is to summarise, compare and test the proposed relationships and infer findings. The collected data was tabulated and analysed using descriptive and inferential statistical in order to meet the objectives of the study, and to test the hypotheses.

ORGANISATION OF THE STUDY FINDINGS

The data collected from the postoperative cardio thoracic surgery patients are organised, analysed and presented under the following headings:

Section I:

Description of demographic variables of respondents.

Section II:

Assessment of pre- and post-foot massage pain level of postoperative cardio thoracic surgery patients.

Section III:

Comparison of pre – and post- foot massage pain level of post operative cardio thoracic patients

Section IV:

Association between levels of pre-foot massage pain score and the selected variables .

Section I: Descriptive analysis of demographic variables

This section deals with the analysis of the data collected from 30 cardio thoracic surgery patients based on their specified inclusion criteria and is explained in frequency and percentage and represented table 4:1

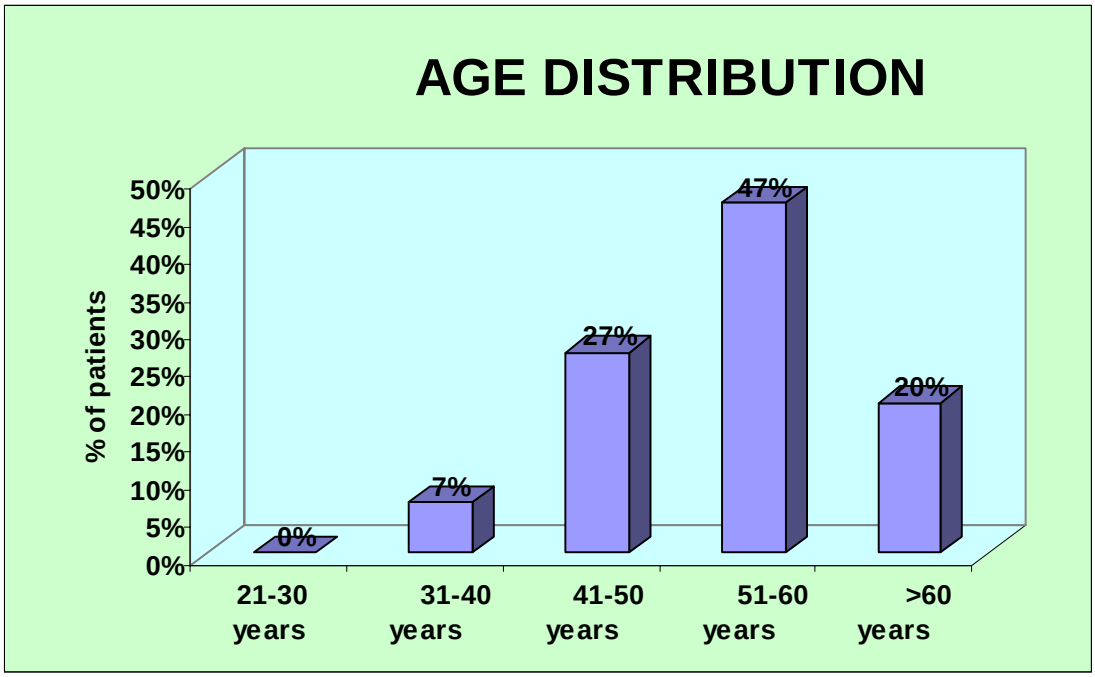
Table4:1: Frequency and Percentage distribution of Samples on selected demographic variables.

N=30

SL.NO	Demographic Variables	Frequency N=30	Percentage %
1.	**Age** 21-30 years	0	0
	31-40 years	2	6.7
	41-50 years	8	26.7
	51-60 years	14	46.6
	>60 years	6	20
2	**Sex** Male	27	90
	Female	3	10
3	**Education**		
	Illiterate	0	0
	Primary school	0	0
	Middle school	2	6.7
	High school	8	26.7
	Intermediate	13	43.3
	Graduate level	3	10
	Technical degree and post graduation	4	13.3
	Research degree	0	0
4	**Occupation**		
	Agriculture	9	30
	Business man	14	46.8
	Private	2	6.6
	Coolie	0	0
	Government employee	3	10
	Professional	2	6.6

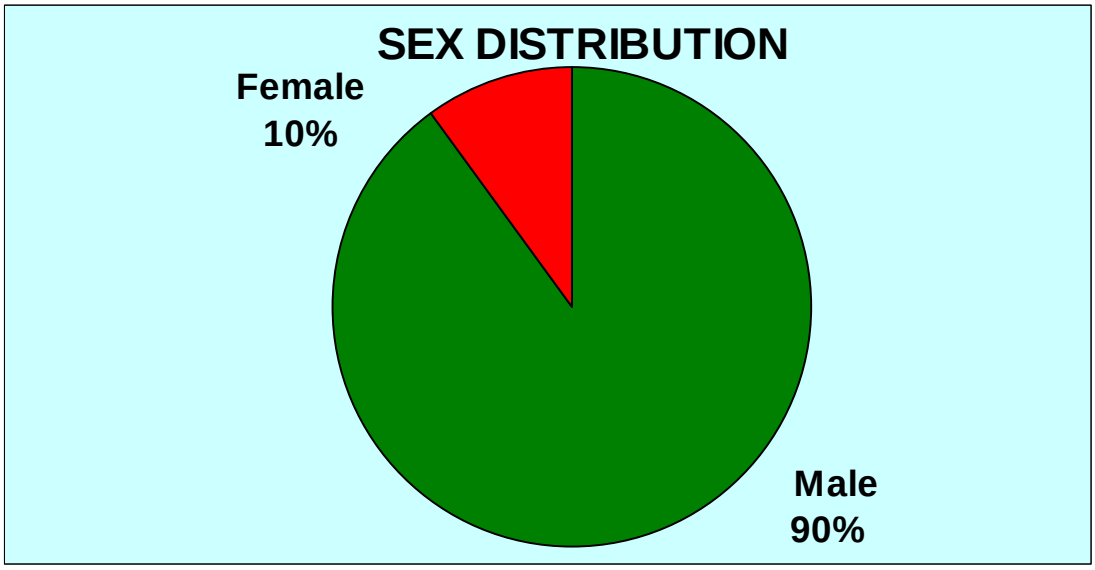
5	**Surgical procedure done**		
	CABG	23	76.7
	Valve replacement	3	10
	Lobectomy	4	13.3
6	**Previous surgery**		
	Yes	11	36.7
	No	19	63.3
7	**Previous analgesia/ anaesthesia**		
	Yes	11	36.7
	No	19	63.3
8	**Pain relief method other than medications**		
	Yes	7	23.3
	No	23	76.7
9	**If yes , type of therapy**		
	Acupuncture	0	
	Traditional massage	20	
	Aroma therapy	0	
	Acupressure	0	
	Yoga	0	
	Music therapy	0	

Fig.4: Distribution of Sample Percentage According To Age



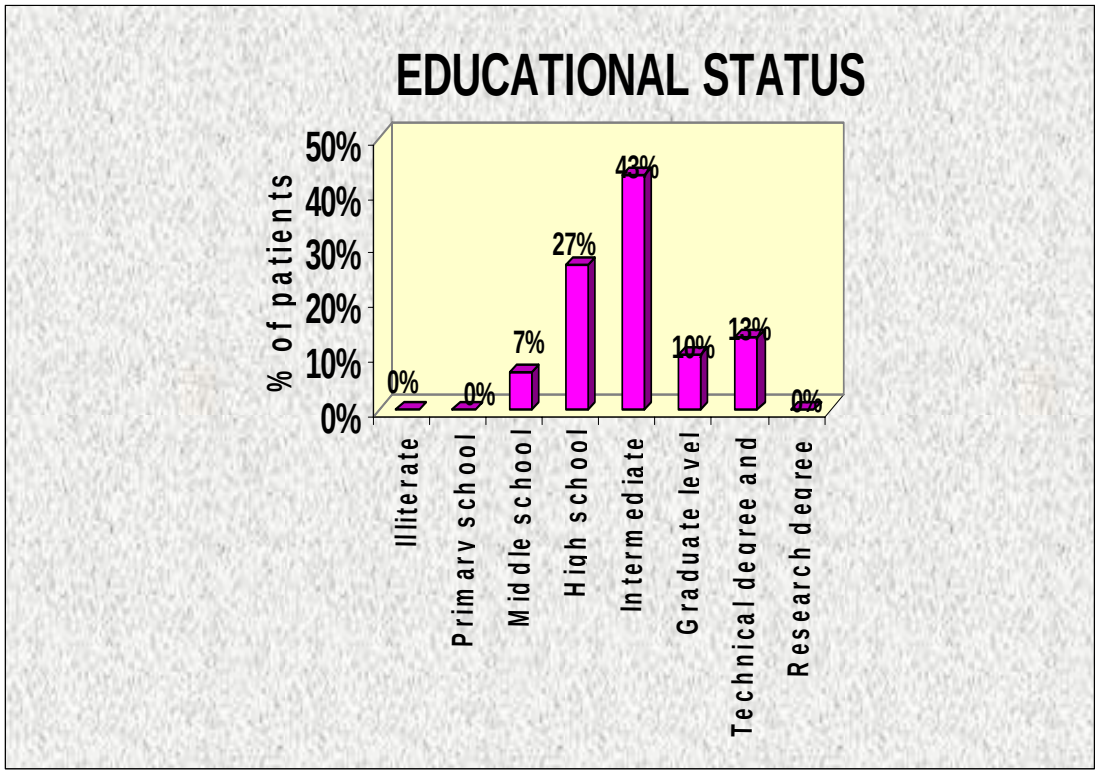
The data presented in the above table shows, that 14 (46.6%) samples were in the age group of 51-60 years, 8(26.7%) in the age group of 41-50 years, 6(20%) in the age group of >60 years, 2(6.7%) in the age group of 31-40years. Thus it can be interpreted that highest percentage was in the age group of 51-60years.

Fig 5 DISTRIBUTION OF SAMPLES PERCENTAGE ACCORDING TO SEX



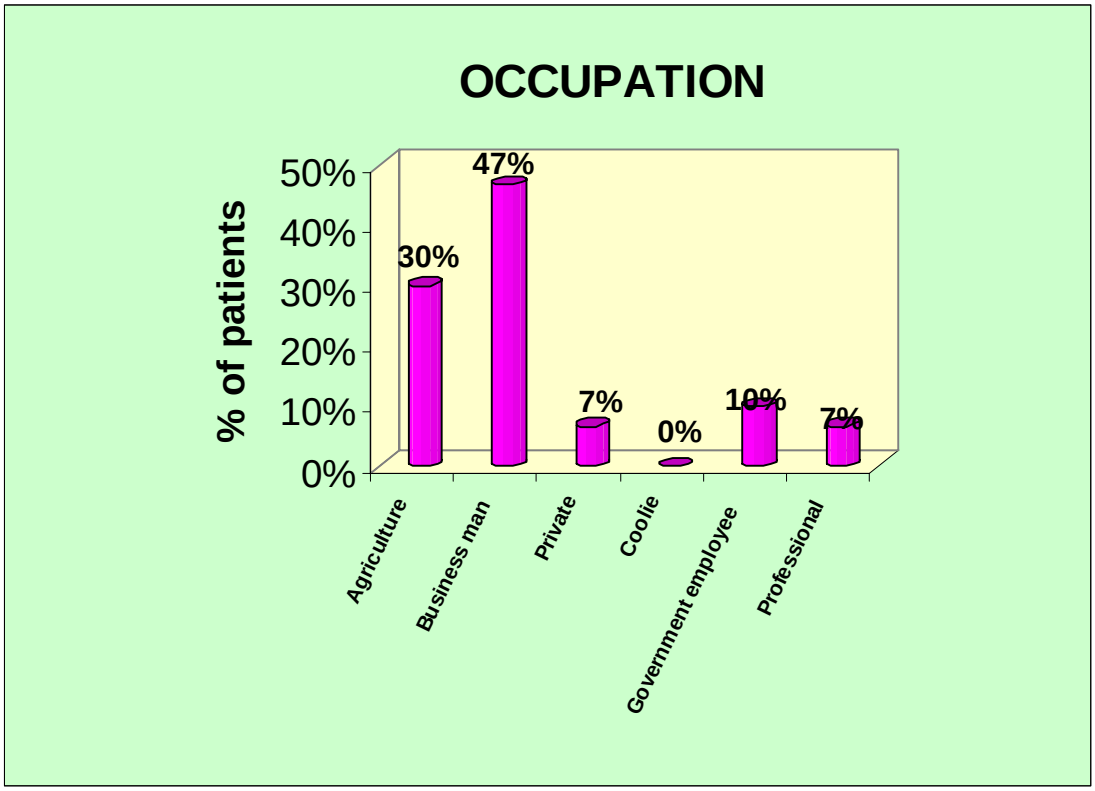
Regarding sex, the maximum 27(90%) of samples was males and 3(10%) of the samples was females.

Fig. 4.3: DISTRIBUTION OF SAMPLE PERCENTAGE ACCORDING TO EDUCATIONAL QUALIFICATION



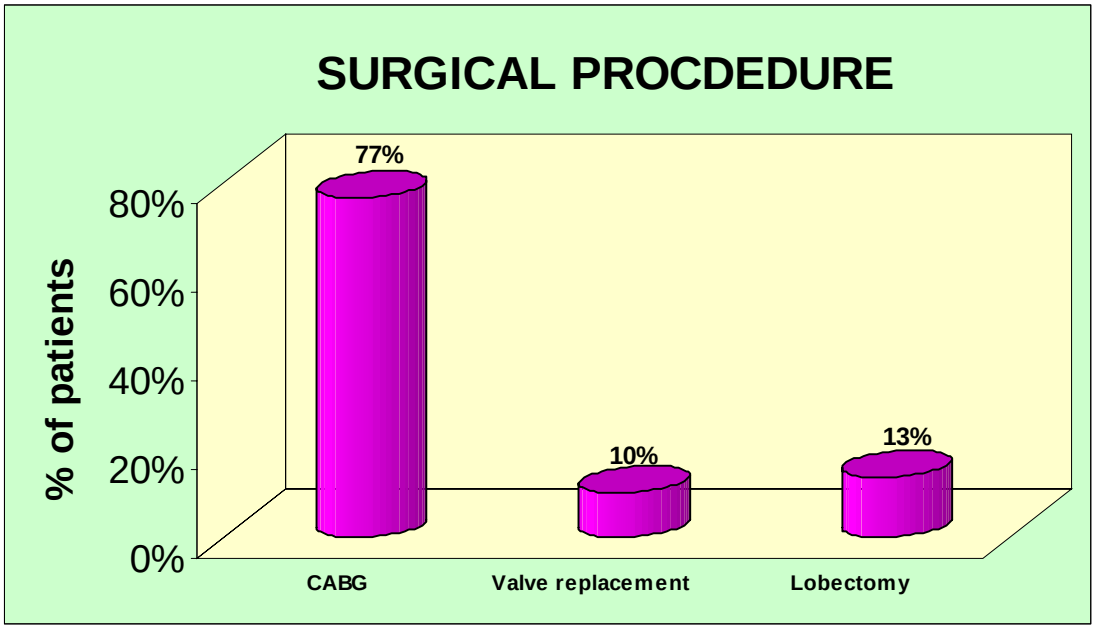
According to educational qualification, 13(43.3%) of the patients have intermediate level of education, 8(26.7%) have high school education, 4(13.3%) have technical degree and post graduation, 3(10%) have graduate level, 2(6.7%) have middle school education. It seems that most of the patients had intermediate level of education.

Fig .4.4: DISTRIBUTION OF SAMPLE PERCENTAGE ACCORDING TO THEIR OCCUPATION



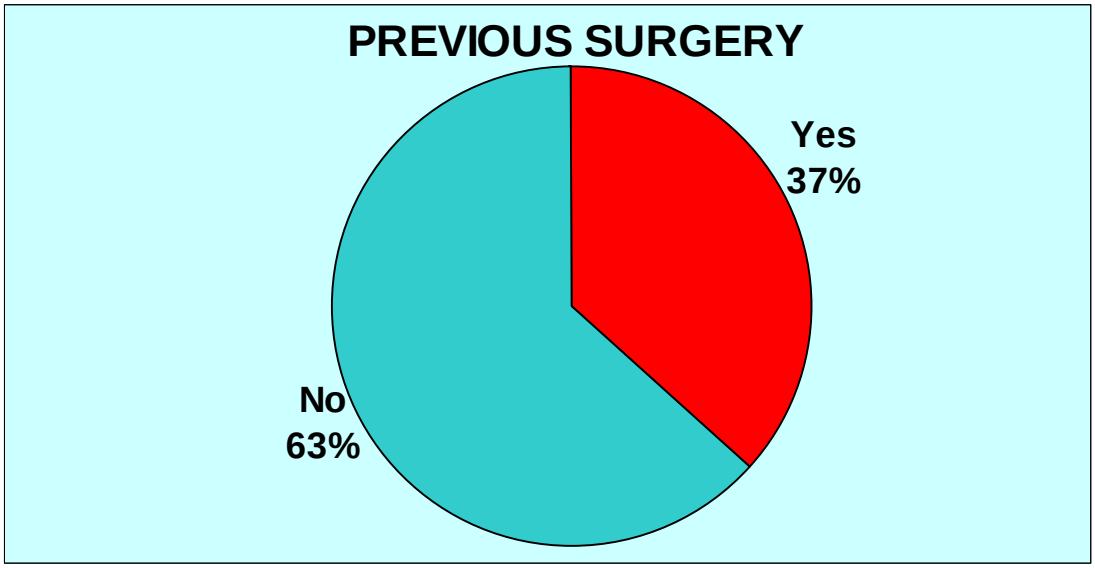
According to occupation, maximum 14(46.8%) of patients were business men, 9(30%) were doing agriculture, 3(10%) were doing government job, 2(6.6%) were doing work in private sector and 2(6.6%) are doing professional work.

Fig 4.5 DISTRIBUTION OF SAMPLE PERCENTAGE ACCORDING TO THE SURGERY DONE



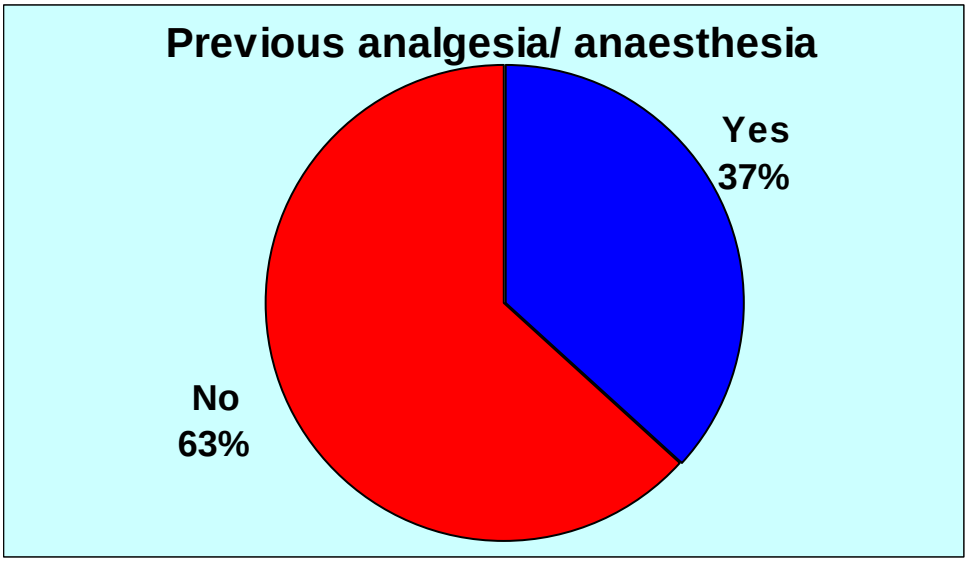
According to surgery done 77% of patients had CABG, 13% had lobectomy and 10% had valve replacement. It seems that most of the patients had CABG.

Fig.4.6 FREQUENCY AND PERCENTAGE DISTRIBUTION OF SAMPLES BASED ON PREVIOUS SURGERY DONE



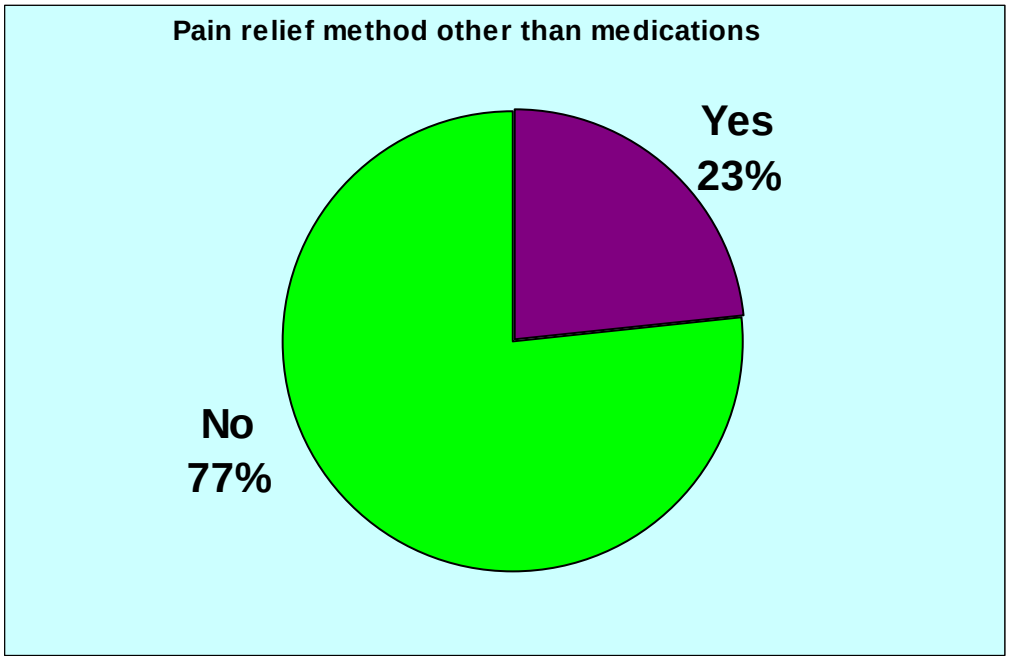
According to previous surgery done 19(63.3%) had no surgery in past and 11(36.7%) had surgery in the past. It shows that majority of the patients didn't had any surgery in the past.

Fig 4.7 DISTRIBUTION OF SAMPLE PERCENTAGE ACCORDING TO PREVIOUS ANALGESIA/ ANAESTHESIA



According to exposure to previous analgesia/ anaesthesia 19(63.3%) of the subjects had no previous experience of analgesia or anaesthesia, 11(36.6%) had previous experience of analgesia or anaesthesia. It seems most of the patients didn't had previous exposure of analgesia/ anaesthesia.

Fig 4.8: DISTRIBUTION OF SAMPLE PERCENTAGE ACCORDING TO PRIOR PAIN RELIEF METHOD OTHER THAN MEDICATION



According to prior pain relief method other than medication 23(76.7%) of subjects had no experience of non-pharmacological pain management. Of the remaining 7(23.3%) subjects, all had undergone traditional massage. It shows that majority of subjects had no prior pain relief other than medication.

SECTION II

ASSESMENT OF PRE- AND POST-FOOT MASSAGE PAIN LEVEL OF POSTOPERATIVE CARDIO THORACIC PATIENTS.

Table.4:2 ASSESSMENT OF PRE- AND POST FOOT MASSAGE PAIN LEVEL OF POST OPERATIVE CARDIO THORACIC PATIENTS

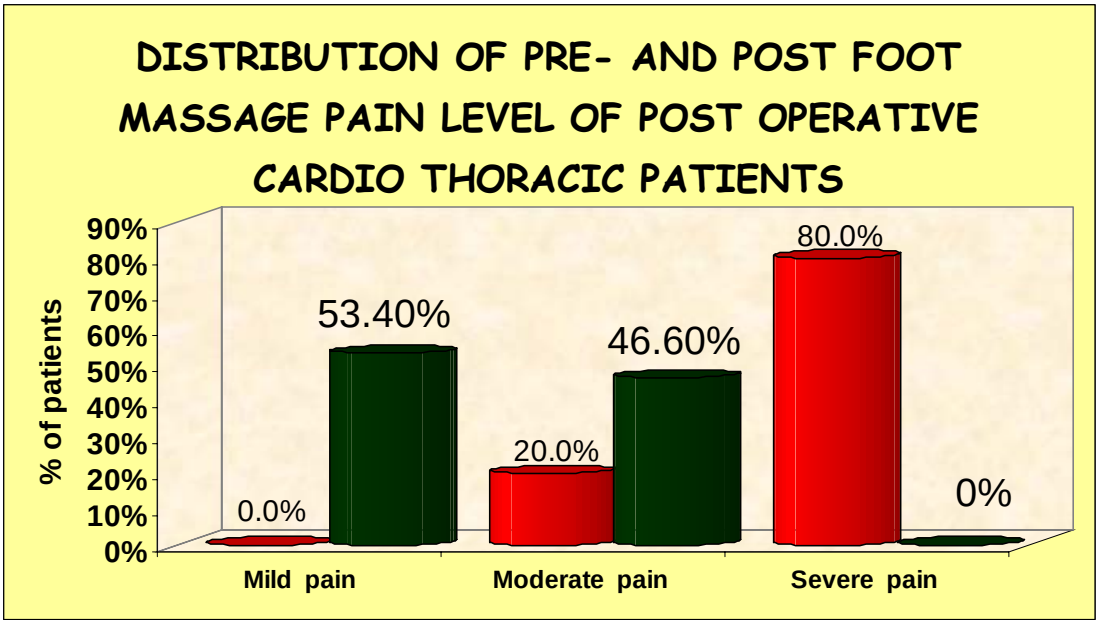
Level of pain	Pre test		Post test	
	Frequency	Percentage	Frequency	Percentage
No pain	-	-	-	-
Mild pain	-	-	16	53.4
Moderate pain	6	20	14	46.6
Severe pain	24	80	-	-
Worst pain	-	-	-	-

The table 4:2 showed that the frequency and percentage distribution of sample according to the level of pain scores in the pre test and post test.

The pre test score reveal that 24(80%) of the samples had severe pain , 6(20%) of the samples had moderate pain.

In the post test 16(53.4%) had mild pain, 14(46.6%) of the samples had moderate pain. It showed that foot massage was very effective to reduce the pain of post cardiothoracic surgery patients.

Fig.4.9:DISTRIBUTION OF PRE- AND POST FOOT MASSAGE PAIN LEVEL OF POST OPERATIVE CARDIO THORACIC PATIENTS



Assessment of pain level of 30 post operative cardiothoracic surgery patients before implementation of foot massage using numerical pain scale and were analysed by descriptive and inferential statistics and presented as table 4: 2.

Table 4:3 Level of pain before foot massage

N=30

Level of pain	Overall score	Mean	Mean %	SD
Numerical pain scale score	4	3.8	76%	0.185

Table 2 shows that pain level of postoperative cardio thoracic surgery patients before implementation of foot massage was moderate to severe. According to numerical pain scale level of pain was 5-9 and corresponding score was 3-4.

Table 4:4 Level of pain after foot massage

N=30

Level of pain	Overall score	Mean	Mean %	SD
Numerical pain scale score	3	2.5	50%	0.694

Table shows that pain level of postoperative cardio thoracic surgery patients after implementation of foot massage was mild to moderate. According to numerical pain scale level of pain was 6-2 and score was 2-3.

Section III

Comparison of pre – and post- foot massage pain level of post operative cardio thoracic patients

Pre and post foot massage pain level of 30 post operative cardio thoracic surgery patients were assessed by using numerical pain scale analysed by descriptive and inferential statistics.

Inorder to find out the significance of difference in the level of postoperative cardiothoracic surgery patients before and after foot massage, the following null hypothesis was formulated:

H_1: The post foot massage pain score will not be significantly lower than the pre foot massage pain score.

Table4:5: Paired 't'test showing significant difference between pre- and post-foot massage pain level

N=30

Numerical pain scale	**Overall score**	**Mean**	**Mean %**	**SD**	**t test**
O_1 (Pre test)	4	3.8	76%	0.185	9.3185*
O_2 (post test)	3	2.46	50%	0.694	

$t_{(29)}$ at 0.05 level = 2.045 *Significant

It is evident from Table 4:5 that the calculated‘t’ values are greater than table value ($t_{(29)}$ = 2.045, P<0.05) showing that there was significant difference in the pre and post-foot massage pain score. Hence the null hypothesis rejected and research hypothesis accepted.

Section IV

Association between pre-foot massage pain score and the selected variables such as age and type of surgery

To test the association between pre foot massage pain score and the selected variables the following hypothesis was formulated.

H_2: There will be no significant association between pre foot massage pain level,

Variable	Level of pre-experiment pain		Total	χ^2 value
	Moderate	Severe		
Age (years) 21 – 50 >50	4 3	6 17	10 20	17.85 S
Sex Male Female	 5 1	 22 2	 27 3	0.370
Education Up to high school Above high school	 3 3	 7 17	 10 20	0.937 NS
Occupation Agriculture, business coolie and private Government , professionals	 5 1	 20 4	 25 4	0 NS
Type of surgery CABG and valve replacement Lobectomy	 6 0	 20 4	 26 4	1.5 NS
Prior analgesia or anaesthesia Yes No	 4 2	 7 17	 11 19	2.90 NS

N=30

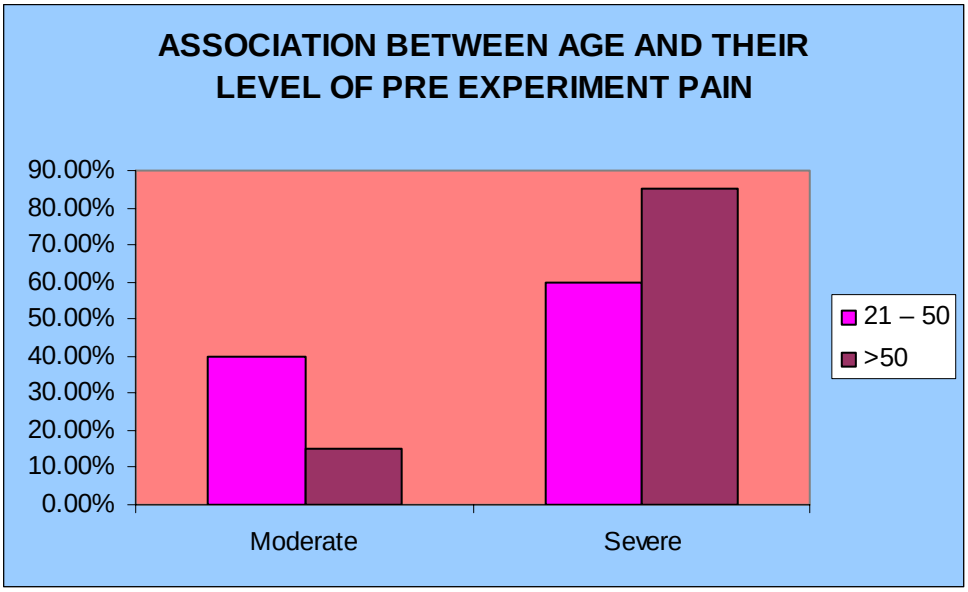
$\chi^2 = 3.84$, $P<0.05$ S = Significant

NS = Not significant

Table 4:6 shows that there was association between pre foot massage pain score, age (χ^2 =17.85, P<0.05).There fore research hypothesis was accepted and the null hypothesis rejected.

There was no association between pre-foot massage pain score, sex (χ^2 = 0.370, P<0.05) , education (χ^2 =0.937, P<0.05),occupation(χ^2 = 0, P<0.05) type of surgery(χ^2 =1.5, P<0.05) , prior analgesia(χ^2 =2.90, P<0.05) , previous pain relief methods(χ^2 =.008873, P<0.05). There fore null hypothesis was accepted and the research hypothesis rejected.

Fig . 4.10 showing the association between age and their level of pre experiment pain



Chapter – V

Discussion

CHAPTER –V

DISCUSSION

This chapter deals with the discussion of the study with appropriate literature review, statistical analysis and findings of the study based on objectives of the study. The aim of the study was to evaluate the effectiveness of foot massage on the level of pain among post operative cardio thoracic surgery patients who were admitted in NIMS hospital. A pre experimental one group pre test post test design was used to assess the effectiveness of foot massage on pain among post operative patients.

Thirty post operative cardiothoracic surgery patients at NIMS hospital were selected for the study by using non probability purposive sampling method. Pre test was conducted by using numerical rating scale for pain for all the subjects.

MAJOR FINDINGS OF THE STUDY

I The first objective of the study was to assess the level of pain of post operative pain in cardiothoracic surgery patients before and after implementation of foot massage.

Table 4:2 display that 24(80%) of the samples had severe pain, 6(20%) of the samples had moderate pain before giving foot massage. It also shows that 16(53.4%) of the samples had mild pain and 14(14.6%) of the samples had moderate pain after giving foot massage.

II The second objective was to determine the effectiveness of foot massage on the level of pain among post operative cardiothoracic surgery patients.

Overall pain score of pre-test mean score was 3.8 which is 7.6% and overall pain post test mean score was 2.5, which is 50% of total score revealing that after giving foot massage the pain level got reduced.

III The third objective was to find out the association between the pre-test pain score and the selected demographic variables.

Table 4:6 shows that there was association between pre foot massage pain score, age (χ^2 =17.85, P<0.05).There fore research hypothesis was accepted and the null hypothesis rejected.

There was no association between pre-foot massage pain score, sex (χ^2 = 0.370, P<0.05) , education (χ^2 =0.937, P<0.05),occupation(χ^2 = 0, P<0.05) type of surgery(χ^2 =1.5, P<0.05) , prior analgesia(χ^2 =2.90, P<0.05) , previous pain relief methods(χ^2 =.008873, P<0.05). There fore null hypothesis was accepted and the research hypothesis rejected.

Chapter VI

Summary & Conclusion

CHAPTER VI

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter represents the summary, findings, conclusion, implications and recommendations, which create a base for evidence based practice.

STATEMENT OF THE PROBLEM

"A study to evaluate the effectiveness of foot massage on the level of pain among post operative cardio thoracic surgery patients in Noorul Islam institute of medical sciences and research foundation at Thiruvananthapuram"

SUMMARY OF THE STUDY

The study was conducted at Noorul Islam Institute of Medical Science (NIMS) & Research Foundation. The population of the study included postoperative patients with cardio thoracic surgery. Purposive sampling technique was used to select 30 subjects with pre determined criteria from the population

Tools for data collection were:

Tool I: Baseline proforma.

Tool II: Numerical pain scale to assess pain

The content validity of the tool was established with the help of 5 experts Since numerical pain scale is already standardised tools; reliability test was not

established for the same. A pilot study was conducted to confirm the feasibility for conducting the main study.

The main study was conducted between November 11, 2009 and November 30, 2009. The data obtained were analysed using both descriptive and inferential statistics. The level of significance for testing hypotheses was set at 0.05.

The conceptual framework used for the present study was based on Roy's Adaptation Model. The focus of this theory is the adaptation of the individual to various stimuli both from the environment and from within.

The variables of the present study were: independent variable – foot massage, and dependent variable – pain.

The investigator used an preexperimental research approach to assess the impact of foot massage on level of pain among postoperative patients with cardio thoracic surgery. The research design selected was pre-experimental (one group pre-test post-test) design.

The findings of the study showed significant difference in pain between the pre- and post-foot massage pain score immediately after foot massage ($t = 9.865$, $p < 0.05$) for the numerical pain scale.

There was association between pre foot massage pain score and age ($\chi^2 = 17.85$, $P < 0.05$).There fore research hypothesis was accepted and the null hypothesis rejected.

There was no association between pre-foot massage pain score, sex (χ^2 = 0.370, P<0.05), education (χ^2 =0.937, P<0.05), occupation (χ^2 = 0, P<0.05) type of surgery (χ^2 =1.5, P<0.05), prior analgesia (χ^2 =2.90, P<0.05), previous pain relief methods (χ^2 =.008873, P<0.05). There fore null hypothesis was accepted and the research hypothesis rejected.

On the whole, carrying out present study was really an enriching experience to the investigator. The constant encouragement and guidance by the guide, cooperation and interest of respondents to participate in the study contributed to the fruitful completion of the study.

CONCLUSION

This study attempted to find out the impact of foot massage on the level pain of postoperative patients with cardio thoracic surgery.

- The pre-foot massage pain level was significantly higher than the post-foot massage pain level.

- The highest significance of difference in pain level was found between pre-foot massage and 10 minutes after foot massage.

- There was significant association between the demographic variable, age and pre-foot massage pain score.

NURSING IMPLICATIONS

The findings of this study have brought out certain facts that have far-reaching implication for nursing in the area of practice, education, administration and research.

NURSING PRACTICE

Today, more than ever, healthcare reform calls nursing to provide cost effective care. Concern about possible side effects of drug treatment and heavy expenses on medical care are the reasons why people seek complimentary and alternative medicine, because the dimensions of pain involve physical, psychological, social and spiritual health. There will be a potential reduction in the quality of life. Pain related anxiety, and sleeplessness release stress hormones, which have deleterious effects upon post-surgical outcome.

Using the current research findings nurses can use foot massage as an effective intervention in their practice. Foot massage is cost effective, easy to learn, and has no adverse effects. It does not require additional equipment, extra preparation, or expenditure. Foot massage as a means of touch can be used by the nurses to communicate care and concern for the patients.

The findings of this study can be incorporated in the training of other healthcare personnel and family members in providing healthcare.

NURSING EDUCATION

Alternative and complementary therapies are increasing in popularity (British Medical Association, 1993). Nurses seem to be equipped to act as advocates with regard to pain management in order to assess and alleviate pain of the patients. The use of non-pharmacological measures like foot massage can be easily incorporated in nursing education along with other complementary therapies. To equip nurses to provide holistic care the nursing curriculum needs to cover non-pharmacological measures such as foot massage for pain management. Nurse educators need to highlight the non-pharmacological pain relief measures like foot massage in the curriculum of basic nursing education as part of pain assessment and management. Ongoing education can be planned for graduate students. Students can be given a project work to experiment the need for foot massage in pain management. Foot message as a non-pharmacological pain management method can be highlighted as a part of in-service education programme. Family members should also be educated on foot massage techniques which will enable them to help and care for the individual who is in pain and thereby making these measures beneficial to common people.

NURSING ADMINISTRATION

Today, there is an increasing need for quality and holistic care. The findings of this study could be made use of by nursing and non-nursing personnel. Nursing administrators are in the key position to formulate policies and the execution of quality nursing based on research findings with necessary changes in nursing education and practice. They should develop nursing practice standards, protocols, and manuals for pain assessment and management. Awareness programmes could be

organised and information could be disseminated through media, like newspapers, magazines, television and internet. In-service education for the staff nurses could be provided with special emphasis on the use of foot massage to relieve pain in postoperative patients.

NURSING RESEARCH

A profession seeking to improve the practice of its members and to enhance its professional stature strives for the continuous development of a relevant body of knowledge. It is apparent that there are significant gaps in research with regard to foot massage and pain management. It is also observed that the published research studies and trials on foot massage in the Indian setting are very limited.

Nurse researchers should be aware of the new trends in the existing healthcare system. Emphasis should be laid on research in the area of non-pharmacological measures of pain management in postoperative patients. The findings of the research need to be disseminated through publications so that the utilization of such research findings is encouraged.

RECOMMENDATIONS

1. The study can be replicated on a larger sample with general surgery to have generalisation.

2. A similar study can be replicated on a larger sample having a control group.

3. The study could be undertaken during chronic painful experience like cancer pain.

4. Study could be conducted with a control group to assess the effect of other complimentary therapies such as acupressure, progressive muscle relaxation, and guided imagery.

5. A comparative study can be conducted with more than one intervention.

SUGGESTIONS

1. Complementary therapy cell could be arranged in the institution and multidisciplinary team could be introduced.

2. Pain assessment and management should be given emphasis in postoperative nursing care practices

3. Non-pharmacological methods of pain management should be emphasised in nursing curriculum.

4. Nurses can be given training programmes on non-pharmacological pain management.

5. Findings of this study can be utilised to educate family members and non-nursing personnel to provide quality services in hospital

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CHAPTER VII

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Annexure

ANNEXURE I

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Sakthinagar - 638 315. Bhavani Taluk, Erode District, Tamilnadu.

Ref. No. : *Date .....*

To

Dear Sir / Madam,

SUB: Dharmarathnakara Dr.Mahalingam Institute of Paramedical Sciences & Research, Sakthi Nagar – Permission to conduct study – Ms. Aji .R.L– Reg.

In anticipation to the above subject and as per the curricular requirement, I kindly request you to grant permission to Ms. Aji .R.L M.Sc., (N) II year Post graduate student to conduct Pilot study at your esteemed institution / Hospital.

Kindly oblige and grant her to undergo her study.

Thanking you,

Yours Faithfully,

(Prof.Mrs.R.Vasanthi)
Principal

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of Paramedical Sciences and Research,
(Sri Adichunchanagiri Shikshana Trust)

Head Office : Sri Adichunchanagiri Shikshana Trust®, Sri Adichunchanagiri Kshethra. PIN : 571 811.
Nagamangala Taluk, Mandya Dist., Karnataka. Phone : 08234 - 287333, 287444

ANNEXURE II

LETTER SEEKING PERMISSION TO CONDUCT STUDY

From

Ms.A.ji.R.L, M.Sc. (N) II Year,
(Specialty – Medical Surgical Nursing),
Dr. Mahalingam College of Nursing,
Sakthi Nagar (Po),
Bhavani (TK), Erode (DT),
Tamilnadu.

To

Through:

The Principal,
Dr. Mahalingam College of Nursing,
Sakthi Nagar (Po),
Bhavani (TK), Erode (DT).
Tamilnadu

PRINCIPAL
COLLEGE OF NURSING
Dharmarathnakara Dr.Mahalingam Institute
of Paramedical Sciences and Research,
(Sri Adichunchanagiri Shikshana Trust)

Respected Sir / Madam,

SUB: Permission to conduct study - Reg.

- - - - -

I am II year M.Sc., Nursing student of Dr. Mahalingam College of Nursing, Sakthi Nagar. As a partial fulfillment of Master of Science in Nursing, I have undertaken the following research study, which has to be submitted to The Tamilnadu Dr.M.G.R. medical University, Chennai.

RESEARCH STUDY :

"A Study to evaluate the Effectiveness of Foot Massage on the Level of Pain among Post Operative Cardio Thoracic Surgery patients in Selected Hospitals, Thiruvananthapuram".

ANNEXURE-III

NIMS HEART FOUNDATION
NIMS MEDICITY, Neyyattinkara, Trivandrum
NIMS
NOORUL ISLAM INSTITUTE OF MEDICAL SCIENCE (NIMS) & RESEARCH FOUNDATION
(A UNIT OF N.I. EDUCATIONAL TRUST)
NIMS MEDICITY, Aralummoodu P.O., Neyyattinkara, Pin-695123,
Phone: 2223544, 2223542, e-mail: nicefaizal@yahoo.com www.nimshospital.com

Dr. RAMESWARA T.
MS., M.Ch., D.N.B., F.I.A.C.S.
Chief Cardio Thoracic Surgeon

Letter granting permission to conduct study

Ref

Aji. R.L
IInd yr MSc nursing
Dr . Mahalingam College of Nursing
Erode

Dear Ms. Aji.R.L

I am happy to note that you are doing a study " A study to evaluate the effectiveness of foot massage on the level of pain among post operative cardio thoracic surgery patients in a selected hospital at Thiruvananthapuram "for your dissertation to be submitted to the MGR Medical university, Tamilnadu in partial fulfillment of university requirement for the award of MSc (N) degree. Permission to conduct the study in post operative cardio thoracic unit in NIMS Hospital is hereby granted to you.

I also hereby direct those whom you will contact for assistance in this regard to help our in your project work.

With good wishes

Yours sincerely

Dr.Rameshwara.T.
MS,MCh,DNB,FIACS
Chief, Cardio thoracic surgery.
Cardio thoracic department
Noorul Islam Institute Of Medical Science(NIMS) & Research Foundation
November 25, 2009

Dr.RAMESHWARA T.
M.S., M.ch, D.N.B, F.I.A.C.S
Chief Cardiovascular Thoracic Surgeon
K M C. Reg.No. 26119

ANNEXURE IV

Phone : 04256-247321

SRI ADICHUNCHANAGIRI SHIKSHANA TRUST®
COLLEGE OF NURSING
DHARMARATHNAKARA Dr. MAHALINGAM INSTITUTE OF PARAMEDICAL SCIENCES & RESEARCH
(Kannada Linguistic Minority Institution)
Sakthinagar - 638 315. Bhavani Taluk, Erode District, Tamilnadu.

Ref. No. :

Date .....

LETTER SEEKING EXPERT OPINION ON CONTENT VALIDITY

From

Ms. Aji .R.L M.Sc., (N) II Year
(Speciality - Medical and Surgical Nursing),
Dr.Mahalingam College of Nursing,
Sakthi Nagar (Po),
Bhavani (TK), Erode (DT),
Tamilnadu.

To

Through,
The Principal,
Dr.Mahalingam College of Nursing,
Sakthi Nagar (Po),
Bhavani (TK), Erode (DT).

PRINCIPAL,
COLLEGE OF NURSING
Dharmarathnakara Dr.Mahalingam Institute
of Paramedical Sciences and Research,
(Sri Adichunchanagiri Shikshana Trust)

Respected Sir / Madam,

SUB: Request for the validation of the tool.

I am II year M.Sc., Nursing student of Dr.Mahalingam College of Nursing, Sakthi Nagar. As a partial fulfillment of Master of Science in Nursing, I have undertaken the following research study, which has to be submitted to The Tamilnadu Dr.M.G.R.Medical University, Chennai.

RESEARCH STUDY:

" A study to evaluate the effectiveness of foot massage on the level of pain among post operative cardio thoracic surgery patients in selected hospitals" .

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Nagamangala Taluk, Mandya Dist., Karnataka. Phone : 08234 - 287333, 287444

ANNEXURE V

CONTENT VALIDITY CERTIFICATE

This is to certify that the student Ms. Aji.R.L is studying in Final M.Sc., (N) Post graduate Degree course of Dharmarathnakara Dr. Mahalingam Institute of Paramedical sciences and Research, Sakthi Nagar.

Topic Entitled:

"A STUDY TO EVALUATE THE EFFECTIVENESS OF FOOT MASSAGE ON THE LEVEL OF PAIN AMONG POST OPERATIVE CARDIO THORACIC SURGERY PATIENTS IN NOORUL ISLAM INSTITUTE OF MEDICAL SCIENCES AND RESEARCH FOUNDATION AT THIRUVANANTHAPURAM".

Her content for the study is validated and was found reliable.

Date :
Place :

Signature of guide with seal

PRINCIPAL
SRESAKTHIMAYEIL INSTITUTE OF
NURSING AND RESEARCH
KOMARAPALAYAM - 638 183.

CONTENT VALIDITY CERTIFICATE

This is to certify that the student Ms. Aji.R.L is studying in Final M.Sc., (N) Post graduate Degree course of Dharmarathnakara Dr. Mahalingam Institute of Paramedical sciences and Research, Sakthi Nagar.

Topic Entitled:

"A STUDY TO EVALUATE THE EFFECTIVENESS OF FOOT MASSAGE ON THE LEVEL OF PAIN AMONG POST OPERATIVE CARDIO THORACIC SURGERY PATIENTS IN NOORUL ISLAM INSTITUTE OF MEDICAL SCIENCES AND RESEARCH FOUNDATION AT THIRUVANANTHAPURAM".

Her content for the study is validated and was found reliable.

Date :
Place :

Signature of guide with seal

K. S. PUSHPALATHA
M.Sc.(N) M.B.A..M A
LECTURER

CONTENT VALIDITY CERTIFICATE

This is to certify that the student Ms. Aji.R.L is studying in Final M.Sc., (N) Post graduate Degree course of Dharmarathnakara Dr. Mahalingam Institute of Paramedical sciences and Research, Sakthi Nagar.

Topic Entitled:

"A STUDY TO EVALUATE THE EFFECTIVENESS OF FOOT MASSAGE ON THE LEVEL OF PAIN AMONG POST OPERATIVE CARDIO THORACIC SURGERY PATIENTS IN NOORUL ISLAM INSTITUTE OF MEDICAL SCIENCES AND RESEARCH FOUNDATION AT THIRUVANANTHAPURAM".

Her content for the study is validated and was found reliable.

Date :
Place :

Renu Susan Thomas
Expert
Signature of guide with seal
Assoc. Professor.
Little Flower College of Nursing
Angamaly.

CONTENT VALIDITY CERTIFICATE

This is to certify that the student Ms. Aji.R.L is studying in Final M.Sc., (N) Post graduate Degree course of Dharmarathnakara Dr. Mahalingam Institute of Paramedical sciences and Research, Sakthi Nagar.

Topic Entitled:

"A STUDY TO EVALUATE THE EFFECTIVENESS OF FOOT MASSAGE ON THE LEVEL OF PAIN AMONG POST OPERATIVE CARDIO THORACIC SURGERY PATIENTS IN NOORUL ISLAM INSTITUTE OF MEDICAL SCIENCES AND RESEARCH FOUNDATION AT THIRUVANANTHAPURAM".

Her content for the study is validated and was found reliable.

Date :
Place :

Signature of guide with seal

Dr.RAMESHWARA T.
M.S., M.ch, D.N.B, F.I.A.C.S
Chief Cardiovascular Thoracic Surgeon
K M C. Reg.No. 26119

KMCH SPECIALITY HOSPITAL

15, Palaniappa Street, Near G.H, Erode - 638 009.
✆ : 0424 - 2256456, 4031232 Fax : 2241363
Cell : 99522 75555, 99526 56666.

TRAINING CERTIFICATE IN BACK MASSAGE

KMCH HOSPITAL

DEPARTMENT OF PHYSIOTHERAPHY

16/10/2009

CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Ms.Aji R.L, II Year M.sc Nursing Student has undergone training programme in techniques of foot Massage used for post cardio thoracic surgery patient in the department of physiotherapy at KMCH Hospital from 1/10/2009 to 15/10/2009 for 2 hours / day. She can Perform the techniques effectively for post cardio thoracic surgery patient

Annexure VI

Tool

Baseline Proforma

Instruction: The investigator places a tick mark (✓) in the space provided against the relevant answer.

1. Age (in years)

1.1 21-30 [ ]

1.2 31 – 40 [ ]

1.3 41 – 50 [ ]

1.4 51 – 60 [ ]

1.5 > 60 [ ]

2. Sex

2.1 Male [ ]

2.2 Female [ ]

3. Educational qualification

3.1 Illiterate [ ]

3.2 Primary school [ ]

3.3 Middle school [ ]

3.4 High school [ ]

3.5 Intermediate [ ]

3.6 Graduate level [ ]

3.7 Technical degree and post graduation [ ]

3.8 Research degree [ ]

4. Occupation

4.1 Agriculture [ ]

4.2 Business man [ ]

4.3 Private [ ]

4.4 Coolie [ ]

4.5 Government employee [ ]

4.6 Professionals [ ]

5. Surgical procedure done[type of thoracic done]

5.1 CABG [ ]

5.2 Valve replacement or reconstruction [ ]

5.3 Lobectomy [

6. Have you undergone any surgery in the past?

6.1 Yes [ ]

6.2 No [ ]

7. Have you received any type of analgesia or anaesthesia in the past?

7.1 Yes [ ]

7.2 No [ ]

8. Have you had any pain relief method other than medications for pain in the past?

8.1 Yes [ ]

8.2 No [ ]

9. If yes, type of therapy

9.1 Acupuncture [ ]

9.2 Traditional massage [ ]

9.3 Aroma therapy [ ]

9.4 Acupressure [ ]

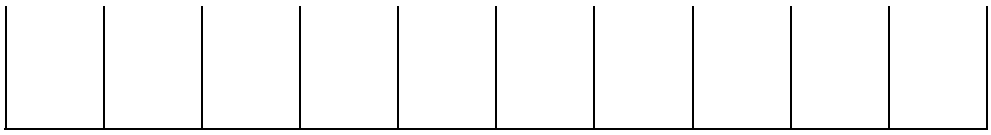
9.5 Yoga [ ]

9.6 Music therapy [ ]

NUMERICAL RATING SCALE FOR PAIN

Instruction:

Please place a tick mark according to the level of your pain on the scale given below.



0 1 2 3 4 5 6 7 8 9 10

0	**No pain**
1 – 3	**Mild pain**
4 – 6	**Moderate pain**
7 – 9	**Severe pain**
10	**Worst pain possible**

LIST OF EXPERTS

1. Mr Ananad, MSc,(N)

   Asst. Professor,
   DMIPSR College of Nursing
   Sakthinar -638315
2. Mrs. K.S.Pushpalatha, MSc(N),

   Asst. Professor,
   Shanmuga College of Nursing
   Salem.
3. Mrs . Jamuna, MSc,(N)

   Principal,
   Sakthimayeil Institute of Nursing & Research
   Komarapalayam-638 183
4. Mrs Renu Susan Thomas MSc,(N)

   Asst. Professor,
   Little Flower College of Nursing,
   Angamaly
5. Dr . Rameshwara, MS, MCh,DNB,FIACS

   Chief Cardiothoracic Surgery department
   NIMS
   Thiruvananthapuram

Annexure VIII

Photographs

Foot massage Step – 1 :- Low stroke friction movement

Foot massage Step – 2 :- Effleurage

Foot massage Step – 3:- Low stroke manipulation below the toes

Foot massage Step – 4:- Thumb rotation